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ABSTRACT

Presented is the final report of Project CHILD, a research effort to develop and validate screening procedures for the identification of language disabled (LD) children, three intervention models for LD children, and a competency based teacher education model. In the two phases of the first study, a battery of screening tests was evaluated with a total of approximately 8,400 elementary grade children. Results led to the recommendation of the LD Screen-Pupil Behavior and LD Screen-Syllabication instruments as efficient screening tests. In the second study, on intervention models, the effectiveness with 210 LD children in 18 classrooms of the following three models was compared: Alphabetic, Phonetic, Structured Linguistic (APSL); Programed Instruction; and Individually Prescribed Program. Results indicated that the APSL approach was slightly more effective with low achieving students and that students in all three programs had positive attitudes. In the final study, a performance based staff development program was evaluated with 14 resource teachers and three regular teachers. Results showed that LD children taught by the teachers in the experimental staff development program demonstrated higher academic achievement and more positive attitudes than students of teachers in the control group. (DB)

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Project CHILD:

Final Report

Texas Education Agency
Austin, Texas

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PREFACE

FINAL REPORT - PROJECT CHILD

The three major objectives of Project CHILD were (1) the development and validation of practical and effective screening procedures for the identification of language handicapped children, (2) the development and evaluation of an intervention model for the effective habilitation of children with language disabilities and (3) the development and evaluation of a competency based instructional program for preparing teachers for language disabled children.

Three separate studies were conducted. This report includes descriptions of these three major studies as well as brief reports on three minor research studies performed by Project CHILD.

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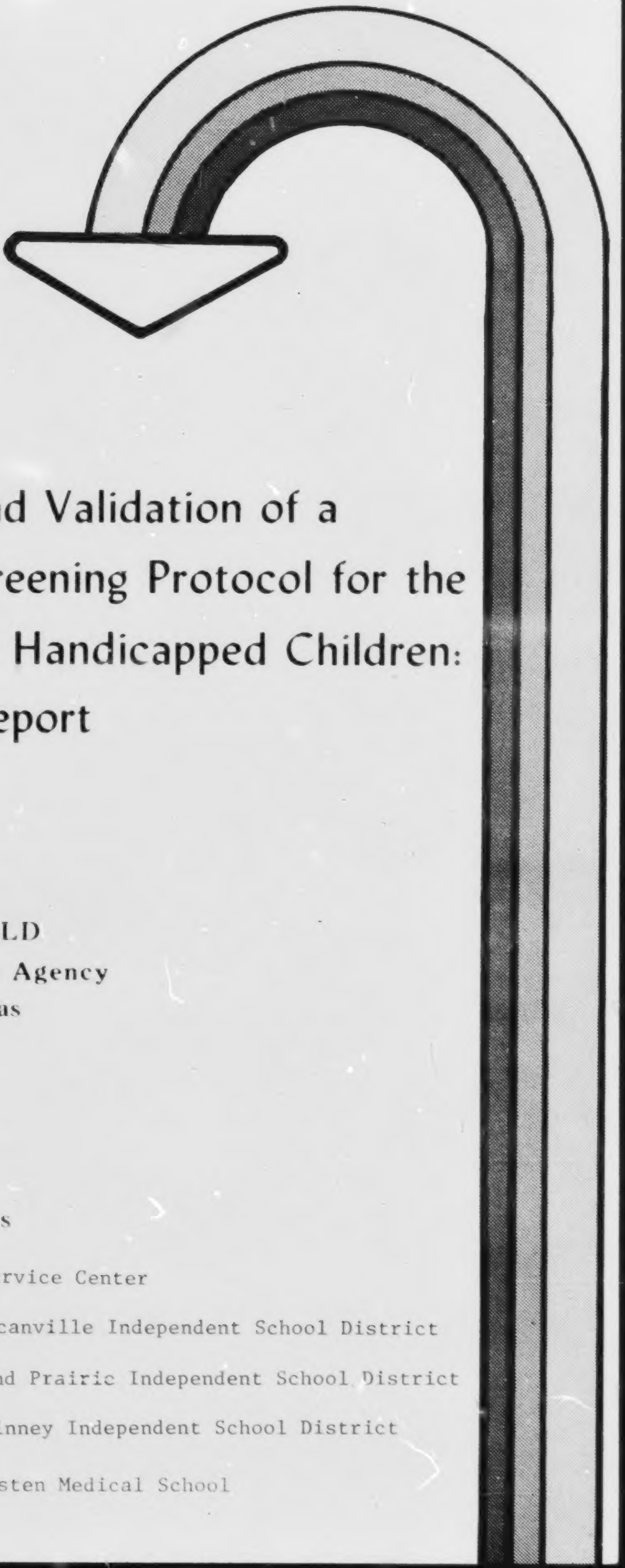

The Development and Validation of a Practical and Effective Screening Protocol for the Identification of Language Handicapped Children: Final Report

Project CHILD
Texas Education Agency
Austin, Texas

EC 070 992

Participants

Region 10 Education Service Center

Dallas Independent School District
Duncanville Independent School District
Irving Independent School District
Grand Prairie Independent School District
Cedar Hill Independent School District
McKinney Independent School District

The University of Texas Southwesten Medical School

THE DEVELOPMENT AND VALIDATION
OF A
PRACTICAL AND EFFECTIVE SCREENING PROTOCOL
FOR THE
IDENTIFICATION OF LANGUAGE HANDICAPPED CHILDREN

PROJECT CHILD

Texas Education Agency
Austin, Texas

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SCREENING STUDY: PHASE I 1971-72

INTRODUCTION

Statement of the Problem

The intent of the screening study was to find the most economical and easily administered set of measures that would predict with a high degree of accuracy the classification of a child suspected of having language disability. The problem was one of discriminating, through the use of a set of screening measures, a language handicapped group (LD) from a non-language handicapped group (normals).

In any prediction or discrimination problem the results or the validity of the measures cannot be tested unless an accurate criterion is found. Unless, through some other source of information it was known in advance whether or not the child was a language handicapped child, it would not be possible to define or describe a feasible set of predictors.

Within this framework approximately 200 children in each of two school districts (Dallas, Irving) were tested with a battery of potential screening measures. Of these 200 children, sixty were selected on the basis of some degree of difficulty for intensive clinical study. The decisions of the clinicians based on their intensive critical appraisal would serve as the criterion for the predictor variables. As each child was studied in the clinical setting, the clinician was asked to make one final dichotomous decision. He was to ascertain whether or not he would place the child in a language handicapped group or outside of a language handicapped group.

The projection was made that among the sixty children chosen in each school district for study by the clinician, about thirty language handicapped children were included. The reason for this stratified sample was to provide the instruments the potential of creating maximum variance within and between the two clinically indentified groups. If the normal proportionality of 10-12% had been accepted through random sampling methods, the instruments for prediction might have not been given the opportunity to show their strength in the prediction problem. The overwhelming force or magnitude of the scores of the non-language disability child might have overshadowed the scores of the language disability child and given false or misleading results.

PROCEDURE

Predictive Measures

The first three predictive measures used in this study were derived by applying the Myklebust formula to achievement test scores to derive the Myklebust Learning Quotient. These were also used as the criteria for predicting language disability in the main Project CHILD study. The scores on the vocabulary, reading and spelling portions of the achievement test were subjected to the Myklebust formula and the language disability ratio was computed. It was this computed ratio that was entered onto the child's record in each of the three areas, his vocabulary ratio, his reading ratio, and his spelling ratio. Myklebust indicated that scores or ratios of .89 or below would identify a child as being language handicapped.

The next two measures used were syllabication tests. The LD-Screen Syllabication Test Forms A and B require the child to either identify the number of syllables in a word or divide a word into its correct number of syllables. This instrument was chosen by the Project CHILD group because previous research indicated syllabication as one of the areas of difficulty for a language handicapped child. (Copies of the LD-Screen Syllabication Test, Forms A and B, are found in Appendix B of this report.)

A coding test was also selected on the basis that research has shown coding as an area of difficulty for language handicapped children. This test, similar to the one used in the WISC examination, required the child to place the correct marks within the symbols shown according to a coding scheme provided at the top of the test page. The number of marks a child located correctly in a given period of time constituted a score on this measure.

The next measure used, one to be completed by the teacher, was developed by Myklebust, the Pupil Rating Scale. Although this scale gives verbal scores, non-verbal scores, and other subtest scores, the decision was made to use the total scale score because the total scale score has the highest reliability. Using this instrument, the teacher rates each child in five behavioral areas which are related to success in learning. These behavioral areas are auditory comprehension, spoken language, orientation, motor coordination and personal social behavior. These ratings were to be made on a five point scale with one as lowest and five as highest being the order of strength. The total score on this instrument was then entered as a potential predictor for each child.

A last predictor, the Bender Visual Motor Gestalt, which is an individually administered examination that has been on the market for many years, was also used.

These eight measures constituted the potential predictor set. The clinical decision to place a child in a language handicapped group or outside a language handicapped group was entered on the child's record as a ninth variable.

Analysis

Of the correlational methods that could be used to define the feasible set of predictors, the decision was made to use the step-wise discriminant analysis procedure. The step-wise discriminant procedure would take the classification scheme given by the clinician and relocate each child into the clinically assigned category using only the eight predictive instruments. The extent to which the weighted combinations of these instruments would be able to properly relocate the child would be the first analysis done. If a combination of any or all of the instruments could not significantly relocate the children in the clinically assigned categories, then it would have to be said that none of the instruments or any combination of them could be used to identify potential language handicapped children. If, however, a significant number of children could be relocated in their clinically assigned groups, then some set or subset of these instruments would constitute a feasible set of screening measures. The step-wise discriminant program, which adds one variable at a time to the mix, always attempting to maximally discriminate or separate the clinically defined handicapped from the non-handicapped was the statistical technique for this analysis. The strength of the step-wise program is that it yields, in order, the variables that made the biggest contribution to the discrimination of these two groups. It also would yield enough information about the overall magnitude of the success of the discrimination procedure that it could be tested for statistical significance and observed for psychological meaningfulness.

Within a procedure such as this the variables that would emerge as the most important are the ones that would make independent contributions to the separation of the two groups. If, for instance, there were two predictor variables each of which could make some contribution to separation of the groups, and it was found that these two variables were highly correlated with each other, this procedure would select the strongest one and ignore the other. This feature is superior to consideration of individual relationships between the criterion, the clinical decision, and each of the variables in turn.

The analysis was set to answer two basic questions: 1) Will any combination of these particular variables be able to significantly relocate the children into their clinically defined groups? 2) What would be the most parsimonious and feasible set of variables to use in future screening endeavors?

Assumptions and Limitations of the Study

An assumption made about the criterion must be understood. In order to do such an analysis, it must be accepted as an underlying assumption that the clinician's decisions are 100% correct. Within this analysis it was not assumed that the clinician in the clinical workup made an error in locating a child. In reality it is probably true that there is an error ratio within the clinical workup itself, and therefore it could be assumed that any errors made in the relocating of the child might be in fact an error in the criterion. The answer probably lies somewhere between those two extremes. It is probable that in clinical workups some errors of placement were made and some errors of placement were due to the predictive measures mislocating the child. This does not hinder the analysis because under these circumstances it is assumed that the degree of accuracy achieved in this analysis is a conservative estimate of the true accuracy of the predictor. Another safeguard within this design was that of replication in the second school district. If the same predictors emerged as being the potentially best in both studies, one could with relative safety choose to use them in future screening work.

RESULTS

Dallas Screening Survey

Of the sixty children submitted for clinical analysis in Dallas, thirty-six of them were found to be normal and twenty-four were found to be learning handicapped. This did give a split near the middle of the group which was anticipated.

Table I indicates the means and standard deviations on each of the eight predictor variables for each group. It can be seen from this table that there were some differences in mean scores on these variables.

Table II displays the correlations among the eight predictor variables. It is to be remembered that not only should the variables which show the greatest difference between the two groups be selected but that their interrelationship with each other must also be taken into consideration so that the element of redundancy could be eliminated from the predictor set. Table II reveals that variables 1, 2, and 3 are all highly related to each other, as might be expected. Variable 8, the Bender Visual Motor Gestalt, did not bear much relationship with any of the other variables and the relationships among the other variables were moderate to low.

Of the eight variables, variable number 4, the syllabication A, in which a child is given a word and asked to decide the number of syllables in that word, emerged as the single best discriminator between the two groups. Referring again to Table I, it can be seen that mean for the normals on variable 4 was 17.02, and the mean for the language disability children was 13.54. Considering that the standard deviation was 2.38 and 3.41 respectively, this variable emerged as a strong discriminator. Variable number 7, the Pupil Rating Scale, also emerged from the analysis as a significant predictor.

TABLE I

MEANS AND STANDARD DEVIATIONS OF EIGHT PREDICTOR VARIABLES FOR LD AND NORMAL SAMPLES

	Normal		L.D.	
	Mean	S.D.	Mean	S.D.
1	96.31	7.41	89.38	7.91
2	95.06	10.14	89.96	8.55
3	93.50	9.62	90.50	8.03
4	17.03	2.38	13.54	3.41
5	14.81	4.01	11.88	3.59
6	47.11	12.78	40.58	12.42
7	74.08	12.53	60.50	10.56
8	11.53	4.06	13.17	4.45

TABLE II

INTERCORRELATIONS OF PREDICTOR VARIABLES

	1	2	3	4	5	6	7	8
1								
2	.76							
3	.76	.71						
4	.50	.34	.43					
5	.31	.27	.22	.54				
6	.16	.18	.29	.30	.38			
7	.33	.26	.26	.32	.24	.19		
8	.13	.19	.02	-.05	.01	-.14	-.12	

In Table I it can be seen that on variable 7, the normals had a mean score of 74.08 and the LD's had a mean of 60.50. If the instructions were carried out according to the suggestions at the beginning of this instrument, 72 would be the expected score for the average child. It might be inferred that the teachers did score this according to instructions and were able to score the various items. The reason that only half of the syllabication test entered the prediction scheme can be found in the interrelationship between variable 4 and variable 5. This .54 relationship would indicate a degree of redundancy between these two measures and only one of them would have been chosen. As the variables continued to be entered into the mix, it was noted that the Bender test did not enter until the fifth step and that it did not make a significant contribution to the discrimination of the two groups. Only the first two variables, the syllabication test and the Pupil Rating Scale, were found to have made a significant contribution to the separation of these two groups.

The syllabication test is administered directly to the child and is related to what has already been identified as one of the common problems of children with language disability, the inability to divide a word into its correct syllables. The second instrument is administered or scored by the teacher as she observes the behavior of the child. These two instruments in combination seem to provide a sound basis for future screening of language disability children. They did make a statistically significant prediction and in a practical sense they correctly located thirty of the thirty-six children that had been assigned to the language disability group. This ratio of 48 correct placements to 12 misses is quite good when it is realized that this must represent the minimal predictability using these measures. It should be noted that although the Myklebust ratio measures did not enter into this mix, one of them, the vocabulary portion of the tests would have been a statistically significant independent predictor of group membership. In this study other instruments were found to be stronger and more accurate in a statistical sense.

Irving Screening Survey

The same measures were used in the Irving study as potential predictors, however, a different group of clinicians were used for the sixty clinical investigations and for making the dichotomous decision of language handicapped or normal. It is felt that this created even a more conservative test of the predictive instruments because a clinical bias could not enter into the total study. If the same instruments could be used to predict language handicap using two different sets of clinicians, one might place additional faith in the ability of these instruments to differentiate the groups. Because of incomplete data, only fifty-nine children were classified in the clinical groupings. Of the fifty-nine, thirty-two were classified as normal and twenty-seven were classified as LD's. Three predictors emerged as making a significant contribution to the differentiation of the two groups. Of the three, the Pupil Rating Scale was in common with the Dallas study. In Irving it emerged as the primary differentiator of the two groups. In the Dallas study it emerged as the second most important predictor variable. The second most important variable in the Irving study was the Bender Gestalt Test. This variable, however, did not show up at all in the Dallas study. The third variable contributing in the Irving study was the Syllabication B. This is the part in which the child is given alternatives as to how to divide a word and must choose the correct one. The results then were quite encouraging because two of the variables, the Pupil Rating Scale and the syllabication test, had in fact shown to be significant differentiators in both studies.

Using only the Syllabication B and the rating scale as predictors, thirty-nine correct predictions were made as opposed to twenty misses. The predominant misses were in the normal group where twelve children were located as LD's whereas the clinicians had identified them as normals. Of the LD's only eight were mislocated. It should be noted here that the difference in the Irving system between those children chosen as LD's and those chosen as normals were in general smaller on all the variables than the differences found in Dallas. This might be some indication of the wider variance in language disability problems in a large school system. It would then follow that in school systems where there is little variance from the best to the worst, student predictions would become much more difficult and more subject to error.

CONCLUSIONS AND IMPLICATIONS

In viewing both of the surveys, certain recommendations can be given with relative assurance: 1) A feasible set of instruments can be found to differentiate and separate the language disability children from children who would be classified as normal. 2) Of those instruments tried, Pupil Rating Scale and the Syllabication Test seem to emerge as the two best instruments to be used in the screening process. 3) The Bender Visual Motor Gestalt, although it did function in the Irving study, did not function in the Dallas study, and as a result should not be recommended for use in the screening. 4) Due to the differentiation of having part A of the Syllabication Test emerge in one study and part B in the other, it is recommended that the total Syllabication Test be used in future screening work. This should increase the reliability of the total screening program. Although for the second year of the study the exact cut-offs in each district might well be used, it is recommended that any school districts using these screening instruments attempt to gather data and construct their own norms. Some basic differences were found between the scores in Dallas and the scores in Irving which would indicate that again, because of school district size or composition, there are some between-district differences that must be considered. Also, since some children were mislocated by these instruments, it is recommended that all programs in any district remain flexible in their early stages so that any children can be moved in to the LD program or taken out of the LD program if the teachers believe the children have been misidentified. It is felt that this last recommendation is critical because all screening, no matter how complex, is always subject to error. Teachers working with the children in the early weeks of the program might well identify these mistakes and corrections should be made.

SCREENING STUDY: PHASE II 1972-73

PROCEDURE AND ANALYSIS

Subsequent to the initial screening study conducted in Dallas and Irving, approximately 8,000 second, third, fourth, and fifth grade children were screened in Cedar Hill, Grand Prairie, and McKinney. Representatives from each of these individual school districts were instructed in the administration and scoring of the LD-Screen-Syllabication Test and the Myklebust Pupil Rating Scale. These representatives from the school districts then supervised the administration, scoring, and recording of the individual test scores. A random sample of the scores of the students being screened in Grand Prairie and the total population in Cedar Hill and McKinney were used to derive the mean and standard deviation for each test for children at each grade level in each school district. It was then recommended that those children who scored below one standard deviation from the mean on all three screening tests be referred for further evaluation to determine appropriate educational placement.

In Duncanville approximately 2,000 second, third, fourth, and fifth grade children were administered the LD-Screen-Syllabication Test and Myklebust Pupil Rating Scale. One thousand of these students were also administered the LD Screen-Pupil Behavior. (A copy of this instrument is found in Appendix A of this report.) The mean and standard deviation for each of the testing instruments were derived for each of the four grades.

In order to further validate the screening procedure, sixty children were selected using their scores on the four instruments to identify twenty

"Normals" and forty "LD children". The ten boys and ten girls who were identified as being "Normal" included five children from each of grades two, three, four, and five.

All twenty children scored within plus or minus one standard deviation from the mean on all four of the LD-Screen instruments. The forty children who were identified as possible "LD children" were from grades two, three, four and five and scored below one standard deviation from the mean on all four of the LD-Screen instruments.

These sixty children were administered a battery of psychological tests including the Wechsler Intelligence Scale for Children, Illinois Test of Psycholinguistic Abilities, Bender Visual Motor Gestalt Test, and Wide Range Achievement Test by qualified psychologists. The psychologists were then asked to classify the children as being "LD" or "Normal" on the basis of their test results. The results of the LD-Screen and the judgement of the psychologists were in agreement for all twenty of the "Normal" children and for thirty-one out of forty of the "LD" children. (See Table 1)

TABLE 1

Results of LD-Screen and Psychologists' Judgement

	LD Screen Identification	Psychologists' Judgement
LANGUAGE DISABILITY	40	31
NORMALS	20	20
SLOW LEARNERS	0	6
UNDERACHIEVERS	0	3

The nine children for whom there was not agreement between the LD-Screen and psychologists' judgement were identified by the psychologists as three under-achievers and six slow learners. None were classified as "Normal" students. (See Table 2)

TABLE 2

Psychologists' Identification of Children by Grade Levels

Grade	Normal	LD	Slow Learners	Underachievers
2	5	4	5	1
3	5	10	0	1
4	5	11	1	1
5	5	6	0	0
Totals	20	31	6	3

Since it appeared that the four screening instruments were not as effective for second graders as for third, fourth, and fifth graders, the intercorrelation coefficients were derived for the second graders (N=13) and for the third, fourth, and fifth graders (N=40) as two separate groups. (See Tables 3 and 4 for the intercorrelations between the LD-Screen identification of LD and Normal children, the Psychologists' Judgement, LD-Screen instruments, Illinois Test of Psycholinguistic Abilities scores, Bender Visual Motor Gestalt Test scores, and Wide Range Achievement Test scores.) The data were incomplete on seven of the students.

At the second grade level the identification of students as being LD or normal students using all four screening instruments correlated with the psychologists' judgement resulting from their in-depth appraisal at the .5270 ($P < .05$) level. For Syllabication B the correlation coefficient was .4228 which is not significantly different from zero, suggesting that Syllabication A is a better predictor at the second grade level than B. The correlation coefficient for Myklebust Pupil Behavior Rating Scale was .5446 ($P < .05$), and the correlation coefficient for the LD-Screen-Pupil Behavior was .6354 ($P < .01$) indicating that the latter instrument is the best predictor of language disability at the second grade level as identified by the psychologists' judgement.

LEGEND FOR TABLES 3 & 4

1. L/D Screen Classification
2. L/D Screen-Pupil Behavior
3. Psychologists' Rating
4. L/D Screen-Syllabication "A"
5. L/D Screen-Syllabication "B"
6. Myklebust Pupil Behavior Rating Scale

ITPA Test Data

7. Mean Scale Score
8. Auditory Reception
9. Visual Reception
10. Auditory Association
11. Visual Association
12. Verbal Expression
13. Manual Expression
14. Grammatic Closure
15. Visual Closure
16. Auditory Sequential Memory
17. Visual Sequential Memory

18. Bender Error Score

WRAT Test Data

19. Reading
20. Spelling
21. Arithmetic

TABLE 3

Intercorrelation Matrix of Screening Instruments, ITPA, Bender-Gestalt, and Wide Range Achievement Test Scores For Grade 2 (N=13)

Instrument	1	2	3	4	5	6	7	8	9
1	1.0000	0.9395*	0.5270	0.9149*	0.9172*	0.9264*	0.7016	0.0953*	0.1353
2	0.9395*	1.0000	0.6354	0.8681*	0.8097*	0.9445*	0.0462	0.0827	0.1338
3	0.5270	0.6354	1.0000	0.5354	0.4228	0.5446	0.3438	0.1319	0.5704
4	0.9149*	0.8681*	0.5354	1.0000	0.8818*	0.8832*	0.7026	0.0639	0.1991
5	0.9172*	0.8797*	0.4228	0.8818*	1.0000	0.7829	0.7257	0.1806	0.0958
6	0.9264*	0.9445*	0.5446	0.8832*	0.7829	1.0000	0.5164	-0.0508	0.0589
7	0.7016	0.6462	0.3438	0.7026	0.7257	0.5164	1.0000	0.5544	0.3160
8	0. 0953	0.0827	0.1319	0.0639	0.1806	-0.0508	0.5544	1.0000	0.4126
9	0.1353	0.1338	0.5704	0.1991	0.0958	0.0589	0.3160	0.4126	1.0000
10	0.6620	0.6354	0.4572	0.8193*	0.6911	0.5779	0.7736	0.0288	0.3227
11	0.3685	0.2836	-0.0383	0.3737	0.3172	0.2792	0.7080	0.5938	0.1469
12	0.7569	0.6501	0.4670	0.7085	0.7791	0.5506	0.8617*	0.2857	0.3978
13	0.4586	0.4034	0.0068	0.3752	0.4093	0.4208	0.5130	0.2183	-0.3409
14	0.7987	0.7456	0.2369	0.8240*	0.7412	0.7545	0.5466	-0.0835	-0.1005
15	0.0668	0.0550	-0.1440	0.2254	0.2774	-0.0402	0.5692	0.5294	0.0975
16	0.3494	0.3854	0.0345	0.3050	0.3808	0.1650	0.5854	0.0401	-0.1513
17	0.3639	0.3583	0.2264	0.1334	0.4222	0.1618	0.5893	0.6986	0.2981
18	-0.3213	-0.4473	0.0345	-0.3914	-0.3135	-0.4723	-0.1404	0.3233	0.2254
19	0.9480*	0.9038*	0.5327	0.8115*	0.8393*	0.8625*	0.6136	0.0319	0.1061
20	0.8520*	0.7856	0.4625	0.7030	0.7218	0.7759	0.5624	-0.0325	0.2140
21	0.5341	0.5113	0.0305	0.3836	0.3835	0.4196	0.5891	-0.1289	-0.0647

* p less than .001

TABLE 3

TABLE 3

Intercorrelation Matrix of Screening Instruments, ITPA, Bender-Gestalt, and Wide Range Achievement Test Scores For Grade 2 (N=13)

Instrument	10	11	12	13	14	15	16	17	18
1	0.6620	0.3685	0.7569	0.4586	0.7987	0.0668	0.3494	0.3639	-0.3213
2	0.6354	0.2836	0.6501	0.4034	0.7456	0.0550	0.3854	0.3583	-0.4473
3	0.4572	-0.0383	0.4670	0.0068	0.2369	-0.1440	0.0345	0.2264	0.0345
4	0.8193*	0.3737	0.7085	0.3752	0.8240*	0.2254	0.3050	0.1334	-0.3914
5	0.6911	0.3172	0.7791	0.4093	0.7412	0.2774	0.3808	0.4222	-0.3135
6	0.5779	0.2792	0.5506	0.4208	0.7545	-0.0402	0.1650	0.1618	-0.4723
7	0.7736	0.7080	0.8617*	0.5130	0.5466	0.5692	0.5854	0.5893	-0.1404
8	0.0288	0.5938	0.2857	0.2183	-0.0835	0.5294	0.0401	0.6986	0.3233
9	0.3227	0.1469	0.3978	-0.3409	-0.1005	0.0975	-0.1513	0.2981	0.2254
10	1.0000	0.3385	0.7776	0.2901	0.6373	0.3837	0.5571	0.0936	-0.3606
11	0.3385	1.0000	0.5629	0.3840	0.3584	0.4613	0.1067	0.3750	-0.0741
12	0.7776	0.5629	1.0000	0.2565	0.5693	0.3005	0.4495	0.5282	-0.1851
13	0.2901	0.3840	0.2565	1.0000	0.2801	0.1283	0.3793	0.2210	0.0635
14	0.6373	0.3584	0.5693	0.2801	1.0000	0.0389	0.4455	-0.0316	-0.3916
15	0.3837	0.4613	0.3005	0.1283	0.0389	1.0000	0.3138	0.3963	-0.2297
16	0.5571	0.1067	0.4495	0.3793	0.4455	0.3138	1.0000	0.2908	-0.1832
17	0.0936	0.3750	0.5282	0.2210	-0.0316	0.3963	0.2908	1.0000	0.0183
18	-0.3606	-0.0741	-0.1851	0.0635	-0.3916	-0.2297	-0.1832	0.0183	1.0000
19	0.5742	0.2399	0.6873	0.3765	0.8148*	-0.0586	0.4316	0.3302	-0.2039
20	0.5748	0.2747	0.7221	0.2759	0.7738	-0.2109	0.3714	0.2529	-0.1894
21	0.5372	0.3738	0.6140	0.4208	0.4767	0.0876	0.7122	0.2922	-0.3259

TABLE 3
Intercorrelation Matrix of Screening Instruments, ITPA, Bender-Gestalt, and Wide Range Achievement Test Scores For Grade 2 (N=13)

Instrument	19	20	21
1	0.9480*	0.8520*	0.5341
2	0.9038*	0.7856	0.5113
3	0.5327	0.4625	0.0305
	0.8115*	0.7030	0.3836
5	0.8393*	0.7218	0.3835
6	0.8625*	0.7759	0.4196
7	0.6136	0.5624	0.5891
8	0.0319	-0,0325	-0,k289
9	0.1061	0.2140	-0.0647
10	0.5742	0.5748	0.5372
11	0.2399	0.2747	0.3738
12	0.6873	0.7221	0.6140
13	0.3765	0.2759	0.4208
14	0.8148*	0.7738	0.4767
15	-0.0586	-0.2109	0.0876
16	0.4316	0.3714	0.7122
17	0.3302	0.2529	0.2922
18	-0.2039	-0.1894	-0.3259
19	1.0000	0.9190*	0.5623
20	0.9190*	1.0000	0.6268
21	0.5623	0.6268	1.0000

TABLE 4

Intercorrelation Matrix of Screening Instruments, ITPA, Bender-Gestalt Test, and Wide Range Achievement Scores
For Grades 3, 4, 5 (N=40)

Instrument	1	2	3	4	5	6	7	8	9
1	1.0000	0.8714*	0.8563*	0.7638*	0.7856*	0.8850*	0.4466	0.2991	0.0528
2	0.8714*	1.0000	0.8188*	0.7297*	0.7862*	0.9167*	0.4107	0.3118	0.0144
3	0.8563*	0.8188*	1.0000	0.5529*	0.7131*	0.8110	0.3861	0.2899	0.0645
4	0.7638*	0.7297*	0.5529*	1.0000	0.7206*	0.6704*	0.3995	0.2584	-0.0720
5	0.7856*	0.7862*	0.7131*	0.7206*	1.0000	0.7842*	0.3774	0.2515	-0.0714
6	0.8850*	0.9167*	0.8110*	0.6704*	0.7842*	1.0000	0.4279	0.2897	0.0861
7	0.4466	0.4107	0.3861	0.3995	0.3774	0.4279	1.0000	0.7137*	0.6089
8	0.2991	0.3118	0.2899	0.2584	0.2515	0.2897	0.7137*	1.0000	0.2770
9	0.0528	0.0144	0.0645	-0.0720	-0.0714	0.0861	0.6089*	0.2770	1.0000
10	0.5445*	0.4181	0.4899	0.4825	0.4308	0.4369	0.7964*	0.5083*	0.3744
11	0.1587	0.1865	0.1629	0.1034	0.2934	0.1439	0.4971*	0.2240	0.2939
12	0.1674	0.1032	0.0946	0.2923	0.1193	0.1961	0.2175	0.0044	-0.0814
13	0.0860	0.1429	0.0297	0.2663	0.0825	0.1076	0.1521	0.2095	-0.1243
14	0.5588*	0.4404	0.5754*	0.4813	0.5414*	0.5078*	0.6417*	0.4709	0.2189
15	0.1010	0.1827	0.0292	0.2685	0.1026	0.1101	0.6632*	0.5092*	0.4322
16	0.0799	-0.0591	-0.0143	-0.1198	-01207	0.0315	0.4711	0.3007	0.3880
17	0.2301	0.3860	0.1300	0.2921	0.3498	0.3051	0.4651	0.1983	0.2584
18	-0.2873	-0.3092	-0.3355	-0.2185	-0.4231	-0.2768	-0.4100	-03103	-0.1132
19	0.7788*	0.7503*	0.7189*	0.5862*	0.6810*	0.7544*	0.5494*	0.3474	0.2127
20	0.7428*	0.7554*	0.6950*	0.5242*	0.6018*	0.7219*	0.4932*	0.3592	0.1995
21	0.5971*	0.6553*	0.5627*	0.4583	0.6055*	0.6446*	0.1917	0.2168	-0.0873

* P sig at .001 level

TABLE 4

Intercorrelation Matrix of Screening Instruments, ITPA, Bender-Gestalt Test, And Wide Range Achievement Scores For Grades 3,4,5 (N=40)

Instrument	10	11	12	13	14	15	16	17	18
1	0.5445*	0.1587	0.1674	0.0860	0.5588*	0.1010	0.0799	0.2301	-0.2873
2	0.4181	0.1865	0.1032	0.1429	0.4404	0.1827	-0.0591	0.3860	-0.3092
3	0.4899	0.1629	0.0946	0.0297	0.5754*	0.0292	-0.0143	0.1300	-0.3355
4	0.4825	0.1034	0.2923	0.2663	0.4813	0.2685	-0.1198	0.2921	-0.2185
5	0.4308	0.2934	0.1193	0.0825	0.5414*	0.1026	-0.1207	0.3498	-0.4231
6	0.4369	0.1439	0.1961	0.1076	0.5078*	0.1101	0.0315	0.3051	-0.2768
7	0.7964*	0.4971*	0.2175	0.1521	0.6417*	0.6632*	0.4711	0.4651	-0.4100
8	0.5083*	0.2240	0.0044	0.2095	0.4709	0.5092*	0.3007	0.1983	-0.3103
9	0.3744	0.2939	-0.0814	-0.1243	0.2189	0.4322	0.3880	0.2584	-0.1132
10	1.0000	0.5358*	0.1788	-0.0543	0.5881*	0.3531	0.3237	0.2444	-0.3539
11	0.5358*	1.0000	-0.0477	-0.2131	0.3937	0.1050	0.0347	0.2351	-0.2849
12	0.1788	-0.0477	1.0000	0.0518	0.2325	0.0766	0.0466	0.0532	-0.2052
13	-0.0543	-0.2131	0.0518	1.0000	-0.0146	0.3586	-0.1454	0.1248	0.2632
14	0.5881*	0.3937	0.2325	-0.0146	1.0000	0.1434	0.1057	0.1093	-0.3948
15	0.3531	0.1050	0.0766	0.3586	0.1434	1.0000	0.2789	0.3393	-0.2202
16	0.3237	0.0347	0.0466	-0.1454	0.1057	0.2789	1.0000	0.0279	-0.1178
17	0.2444	0.2351	0.0532	0.1248	0.1093	0.3393	0.0279	1.0000	-0.3059
18	-0.3539	-0.2849	-0.2052	0.2632	-0.3948	-0.2202	-0.1178	-0.3059	1.0000
19	0.5391*	0.3548	0.1924	0.0700	0.6208*	0.1336	0.1034	0.3238	-0.2928
20	0.4367	0.3077	0.1044	0.0974	0.5420*	0.1586	0.0787	0.3079	-0.2647
21	0.1251	0.1352	0.1088	0.1542	0.3909	-0.0284	-0.1808	0.3401	-0.2307

TABLE 4

Intercorrelation Matrix of Screening Instruments, ITPA, Bender-Gestalt Test, and Wide Range Achievement Scores For Grades 3,4,5 (N=40)

Instrument	19	20	21
1	0.7788*	0.7428*	0.5971*
2	0.7503*	0.7554*	0.6553*
3	0.7189*	0.6950*	0.5627*
4	0.5862*	0.5242*	0.4583
5	0.6810*	0.6018*	0.6055*
6	0.7544*	0.7219*	0.6446*
7	0.5494*	0.4932*	0.1917
8	0.3474	0.3592	0.2168
9	0.2127	0.1995	-0.0873
10	0.5391*	0.4367	0.1251
11	0.3548	0.3077	0.1352
12	0.1924	0.1044	0.1088
13	0.0700	0.0974	0.1542
14	0.6208*	0.5420*	0.3909
15	0.1336	0.1586	-0.0284
16	0.1034	0.0787	-0.1808
17	0.3238	0.3079	0.3401
18	-0.2928	-0.2647	-0.2307
19	1.0000	0.9420*	0.7336*
20	0.9420*	1.0000	0.7607*
21	0.7336*	0.7607*	1.0000

TABLE 4

Since the Psychologists indicated that all the second grade students identified by the screening study actually had a learning problem, using the dichotomous classification of children having a learning problem and children not having learning problems the correlation coefficients for the four instruments were as follows:

Syllabication "A"	.9148	($P < .001$)
Syllabication "B"	.9172	($P < .001$)
Myklebust's Pupil Behavior Rating Scale	.9264	($P < .001$)
LD Screen-Pupil Behavior	.9395	($P < .001$)

Although the sample was very small at the second grade level, these results indicate that the four screening instruments are highly sensitive to children having potential problems at the second grade level. The early identification of potential learning problems by the four instruments may have value in the identification of children needing observation to prevent an extended period of school failure before identification and intervention can be employed.

Using the psychologists' judgement as the criteria for the identification of children having learning disabilities, the ITPA Mean Scale Score correlated at the .3438 level which is not significantly different from zero. The highest correlation among the subtests was Visual Reception which correlated at the .5704 level ($P < .05$). Verbal expression correlated at the .4670 ($P < .05$) level. None of the other correlation coefficients were significantly different from zero. Using the dichotomous categories of children having learning problems and children not having learning problems, however, the ITPA Mean Scale Score correlated at the .7016 level which is significantly different from zero above the .005 level. Grammatic Closure correlated at the .7987 level ($P < .005$); Verbal Expression correlated at the .7569 level ($P < .005$); Auditory Association correlated at the .6620 ($P < .005$) level, and Manual Expression correlated at the .4568 level ($P < .005$). None of the other correlation coefficients were significantly different from zero.

In the area of achievement for the second grade students the combination of the four screening instruments, the four instruments individually, and the psychologists' judgement correlated with reading as follows:

.. Combination of the four screening instruments - .9480 ($P < .001$)
.. Syllabication "A" - .8115 ($P < .001$)
.. Syllabication "B" - .8393 ($P < .001$)
.. Myklebusts' Pupil Rating Scale - .8625 ($P < .001$)
.. LD Screen-Pupil Behavior - .9038 ($P < .001$)
.. Psychologists' Judgement - .5327 ($P < .05$)

In the area of spelling for the second grade the correlation coefficients were as follows:

.. Combination of the four screening instruments - .8520 ($P < .001$)
.. Syllabication "A" - .7030 ($P < .005$)
.. Syllabication "B" - .7218 ($P < .005$)
.. Myklebusts' Pupil Behavior Rating Scale - .7750 ($P < .005$)
.. LD Screen-Pupil Behavior - .7856 ($P < .005$)
.. Psychologists' Judgement - .4625 ($P < .05$)

In the area of arithmetic for the second grade the correlation coefficients were as follows:

.. Combination of the four screening instruments - .5341 ($P < .05$)
.. Syllabication "A" - .3836
.. Syllabication "B" - .3835
.. Myklebusts' Pupil Behavior Rating Scale - .4196

correlated as follows:

.. Syllabication "A" - .7638 (P$<$.001)

.. Syllabication "B" - .7856 (P$<$.001)

.. Myklebusts' Pupil Behavior Rating Scale - .8850 (P$<$.001)

.. LD Screen-Pupil Behavior - .8714 (P$<$.001)

Here again the screening instruments appear to be more effective in identifying learning problems in general than learning disabilities specifically as determined by a group of qualified psychologists.

The ITPA Mean Scaled Score correlated with the psychologists' judgement at the .3861 (P$<$.01) level. Among the ITPA subtests Grammatic Closure correlated with the psychologists' judgement as the .5754 (P$<$.001) level; Auditory Association correlated at the .4899 (P$<$.001) level; and Auditory Reception correlated at the .2899 (P$<$.05) level. None of the other correlation coefficients for the subtests were significantly different from zero.

In the area of achievement for the third, fourth, and fifth grade students the combination of the four screening instruments, the four instruments individually, and the psychologists' judgement correlated with reading as follows:

.. Combined four Screening Instruments - .7788 (P$<$.001)

.. Syllabication "A" - .5862 (P$<$.001)

.. Syllabication "B" - .6810 (P$<$.001)

.. Myklebusts' Pupil Behavior Rating Scale - .7544 (P$<$.001)

.. LD Screen-Pupil Behavior - .7503 (P$<$.001)

.. Psychologists' Judgement - .7189 (P$<$.001)

In the area of spelling for the third, fourth, and fifth graders the correlation coefficients were as follows:

.. Combination of four Screening Instruments - .7428 (P$<$.001)

.. Syllabication "A" - .5242 (P$<$.001)

.. LD Screen-Pupil Behavior - .5113 ($P < .05$)

.. Psychologists' Judgement - .0305

These results suggest that the combination of the four screening instruments is the best predictor of academic achievement for second graders in reading, spelling, and arithmetic.

The fact that the four screening instruments appear to be a better predictor of academic achievement for second graders than the judgement of the psychologists in differentiating between LD children and non-LD children appears to substantiate the classification of the students made by the screening instruments rather than the classification by the psychologists at this age level where a definite diagnosis of a specific learning disability is more difficult.

For the combined third, fourth, and fifth grade students the correlation coefficient between the psychologists' judgement and the identification of LD and normal students using the four screening instruments was .8563 ($P < .001$). Syllabication A correlated with the psychologists' judgement at the .5529 (P .001) level, and Syllabication "B" correlated at the .7131 ($P < .001$) level suggesting that Syllabication "B" is a better predictor than Syllabication "A" at the higher grade levels. Myklebust's Pupil Behavior Rating Scale correlated with the psychologists' judgement at the .8110 ($P < .001$) level, and the LD-Screen-Pupil Behavior correlated at the .8188 ($P < .001$) level suggesting that either of these instruments is a better predictor of learning disabilities as identified by the psychologists' judgement at the third, fourth, and fifth grade levels than the Syllabication tests.

Dividing the third, fourth, and fifth grade students into dichotomous groups of children having a learning problem and those not having learning problems as determined by the psychologists' judgement, the screening instruments yield the following correlation coefficients:

.. Syllabication "B" - .6018 ($P < .001$)
.. Myklebusts' Pupil Behavior Rating Scale - .6446 ($P < .001$)
.. LD Screen-Pupil Behavior - .6553 ($P < .001$)
.. Psychologists' Judgement - .6950 ($P < .001$)

In the area of arithmetic for the third, fourth, and fifth grade students the correlation coefficients were as follows:

.. Combination of four Screening Instruments - .5971 ($P < .001$)
.. Syllabication "A" - .4583 ($P < .005$)
.. Syllabication "B" - .6055 ($P < .001$)
.. Myklebusts' Pupil Behavior Rating Scale - .6446 ($P < .001$)
.. LD Screen-Pupil Behavior - .6553 ($P < .001$)
.. Psychologists' Judgement - .5627 ($P < .001$)

For the combined third, fourth, fifth grade students a combination of the four screening instruments appears to be a better predictor of reading and spelling achievement than any one of the screening tests individually or the psychologists' judgement. The Myklebusts' Pupil Behavior Rating Scale and LD Screen-Pupil Behavior which are based on the teachers' judgement appear to be the best indicators of achievement in arithmetic.

The individual items of the LD Screen-Pupil Behavior were analyzed for both the LD students and the Normal students (See Tables 5 and 6). Although many of the correlation coefficients reached the level of significance, only those correlation coefficients which are significantly different from zero at the .001 level will be discussed. For the LD group Item 1 which deals with the teachers' estimate of the child's intellectual ability correlated with Items 9 and 10 at the .6708 and .7086 levels respectively. Item 9 deals with word recognition in reading, and Item 10 deals with the ability to recall words and express ideas verbally. For the Normal group Item 1 correlated with Item 20, which relates to reading comprehension, at the .6667 level.

TABLE 5

Intercorrelations Among Items on the L/D Screen-Pupil Behavior For LD Students (N=33)

Items	1	2	3	4	5	6	7	8	9
1	1.0000	0.1394	-0.3804	0.4269	0.4490	0.0908	0.5043	0.1032	0.6708*
2	0.1394	1.0000	0.0108	0.0230	0.0568	0.0916	0.0121	0.3024	-0.1721
3	-0.3804	0.0108	1.0000	0.0047	-0.0879	0.0996	-0.1271	-0.1278	-0.2277
4	0.4269	0.0230	0.0047	1.0000	0.3435	0.0052	0.1782	0.0947	0.4543
5	0.4490	0.0568	-0.0879	0.3435	1.0000	0.0315	0.4214	0.2931	0.5221
6	0.0908	0.0916	0.0996	0.0052	0.0315	1.0000	0.4923	0.1268	0.1765
7	0.5043	0.0121	-0.1271	0.1782	0.4214	0.4923	1.0000	0.2617	0.3922
8	0.1032	0.3024	-0.1278	0.0947	0.2931	0.1268	0.2617	1.0000	0.2085
9	0.6708*	0.1721	-0.2277	0.4543	0.5221	0.1765	0.3922	0.2085	1.0000
10	0.7086*	0.0854	-0.3043	0.2929	0.6977*	0.1782	0.5241	0.2786	0.7483*
11	0.1786	0.0550	0.1958	0.4183	-0.0786	0.2193	0.2193	-0.2681	-0.0559
12	0.0300	-0.0288	-0.2381	-0.2193	0.3907	0.3402	0.4919	0.1808	0.0938
13	-0.0614	0.0591	0.0120	0.1468	0.2455	-0.0754	-0.0754	-0.0401	-0.0412
14	0.2017	0.3548	-0.2257	0.1998	0.4322	0.1643	0.0809	0.2204	0.0644
15	-0.0145	0.4744	-0.1471	-0.0941	0.1117	0.2026	0.2026	0.1468	-0.0454
16	0.0067	0.2896	-0.2337	-0.0947	0.1214	0.4130	0.4130	0.1478	0.0209
17	0.2911	0.2312	-0.2411	0.3057	0.1674	0.1065	0.1065	0.0566	0.2714
18	-0.0905	0.1434	-0.0350	-0.0356	-0.0669	0.2484	0.1046	-0.0973	-0.1000
19	0.1166	0.2896	0.1278	0.0892	0.2596	0.2781	0.4130	0.4348	0.2502
20	0.4683	-0.0839	-0.1829	0.2469	0.6855*	0.0551	0.3150	0.1675	0.8032*
21	-0.0603	0.1504	0.2349	-0.0035	0.4104	0.0102	0.0102	0.0950	-0.1172
22	0.4298	0.4314	-0.2392	0.3322	0.4580	0.1741	0.1741	0.2335	0.2185
23	0.3141	0.4456	-0.5080	0.0854	0.3505	0.0675	0.2266	0.2050	0.1721
24	0.2784	0.1250	-0.1611	0.3105	0.2625	0.1329	0.2374	-0.0404	0.1614
25	-0.2039	0.2078	0.0423	-0.1936	-0.1732	0.2707	-00271	-0.1727	-0.1955
26	-0.1771	0.3478	0.1431	0.0741	0.0586	0.1602	0.0658	-0.0152	-0.2334

* p less than .001

TABLE 5

Intercorrelations Among Items on the L/D Screen-Pupil Behavior For LD Students (N=33)

Items	10	11	12	13	14	15	16	17	18
1	0.7086*	0.1786	0.0300	-0.0614	0.2017	-0.0145	0.0067	0.2911	-0.0905
2	-0.0854	0.0550	-0.0288	0.0591	0.3548	0.4744	0.2896	0.2312	0.1434
3	-0.3043	0.1958	-0.2381	0.0120	-0.2257	-0.1471	-0.2337	-0.2411	-0.0350
4	0.2929	0.4183	-0.2193	0.1468	0.1998	-0.0941	-0.0947	0.3057	-0.0356
5	0.6977*	0.0786	0.3907	0.2455	0.4322	0.1117	0.1214	0.1674	-0.0669
6	0.1782	0.2193	0.3402	-0.0754	0.1643	0.2026	0.4130	0.1065	0.2484
7	0.5241	0.2193	0.4919	-0.0754	0.0809	0.2026	0.4130	0.1065	0.1046
8	0.2786	-0.2681	0.1808	-0.0401	0.2204	0.1468	0.1478	0.0566	-0.0973
9	0.7483*	-0.0559	0.0938	-0.0412	0.0644	-0.0454	0.0209	0.2714	-0.1000
10	1.0000	-0.0747	0.4009	0.0257	0.1998	0.1062	0.0892	0.3057	-0.0356
11	-0.0747	1.0000	-0.0917	0.0614	0.0360	-0.1650	-0.1166	-0.0867	-0.2609
12	0.4009	-0.0917	1.0000	0.1803	0.1057	0.3938	0.6256*	0.1954	0.2657
13	0.0257	0.0614	0.1803	1.0000	0.2213	0.1185	-0.0544	-0.1811	-0.2427
14	0.1998	0.0360	0.1057	0.2213	1.0000	0.2385	0.3117	0.3474	-0.0301
15	0.1062	-0.1650	0.3938	0.1185	0.2385	1.0000	0.5563*	0.2685	0.5373
16	0.0892	-0.1166	0.6256*	-0.0544	0.3117	0.5563	1.0000	0.4771	0.4031
17	0.3057	-0.0867	0.1954	-0.1811	0.3474	0.2685	0.4771	1.0000	0.2714
18	-0.0356	-0.2609	0.2657	-0.2427	-0.0301	0.5373	0.4031	0.2714	1.0000
19	0.2731	-0.1166	0.3030	-0.1489	0.1344	0.4781	0.2826	0.2102	0.1738
20	0.6011*	-0.0449	0.1789	0.0883	0.2226	-0.0866	0.1089	0.1324	-0.2276
21	0.1113	-0.1456	0.3784	0.4042	0.2232	0.1581	0.0842	-0.0707	0.2170
22	0.3322	0.0382	0.1121	0.1107	0.8855*	0.3039	0.3304	0.4555	0.1685
23	0.3022	-0.0550	0.5042	0.3866	0.4293	0.5846*	0.4715	0.3193	0.2171
24	0.1682	0.1894	0.3064	0.2128	0.3993	0.3352	0.3735	0.6289*	0.1022
25	-0.1936	-0.2507	0.2426	-0.2370	-0.0534	0.4857	0.4892	0.1873	0.9009*
26	-0.3119	0.1386	0.0684	0.1903	0.3986	0.2401	0.3163	0.0113	0.1410

TABLE 5

Intercorrelations Among Items on the L/D Screen-Pupil Behavior For L/D Students (N=33)

Items	19	20	21	22	23	24	25	26
1	0.1166	0.4683	-0.0603	0.4298	0.3141	0.2784	-0.2039	-0.1771
2	0.2896	-0.0839	0.1504	0.4314	0.4456	0.1250	0.2078	0.3478
3	0.1278	-0.1829	0.2349	-0.2392	-0.5080	-0.1611	0.0423	0.1431
4	0.0892	0.2469	-0.0035	0.3322	0.0854	0.3105	-0.1936	0.0741
5	0.2596	0.6855*	0.4104	0.4580	0.3505	0.2625	-0.1732	0.0586
6	0.2781	0.0551	0.0102	0.1741	0.0675	0.1329	0.2707	0.1602
7	0.4130	0.3150	0.0102	0.1741	0.2266	0.2374	-0.0271	0.0658
8	0.4348	0.1675	0.0950	0.2335	0.2050	-0.0404	-0.1727	-0.0152
9	0.2502	0.8032*	0.1172	0.2185	0.1721	0.1614	-0.1955	-0.2334
10	0.2731	0.6011*	0.1113	0.3322	0.3022	0.1682	-0.1936	-0.3119
11	-0.1166	-0.0449	-0.1456	0.0382	-0.0550	0.1894	-0.2507	0.1386
12	0.3030	0.1789	0.3784	0.1121	0.5042	0.3064	0.2426	0.0684
13	-0.1489	0.0883	0.4042	0.1107	0.3866	0.2128	-0.2370	0.1903
14	0.1344	0.2226	0.2232	0.8855*	0.4293	0.3993	-0.0534	0.3986
15	0.4781	-0.0866	0.1581	0.3039	0.5846*	0.3352	0.4857	0.2401
16	0.2826	0.1089	0.0842	0.3304	0.4715	0.3735	0.4892	0.3163
17	0.2102	0.1324	-0.0707	0.4555	0.3193	0.6289*	0.1873	0.0113
18	0.1738	-0.2276	0.2170	0.1685	0.2171	0.1022	0.9009*	0.1410
19	1.0000	0.1089	-0.0054	0.2364	0.1333	0.2625	0.0935	0.1156
20	0.1089	1.0000	-0.0366	0.2359	0.2468	0.0583	-0.2079	0.0059
21	-0.0054	-0.0366	1.0000	0.2365	0.2192	0.1198	0.2156	0.2070
22	0.2364	0.2359	0.2365	1.0000	0.5103	0.4959	0.0990	0.2909
23	0.1333	0.2468	0.2192	0.5103	1.0000	0.3987	0.2120	0.2438
24	0.2625	0583	0.1198	0.4959	0.3987	1.0000	0.0501	0.2472
25	0.0935	-0.2079	0.2156	0.0990	0.2120	0.0501	1.0000	0.2818
26	0.1156	0.0059	0.2070	0.2909	0.2438	0.2472	0.2818	1.0000

TABLE 6

Intercorrelations Among Items on the L/D Screen-Pupil Behavior For Normal Students (N=20)

Items	1	2	3	4	5	6	7	8	9
1	1.0000	-0.3001	0.1147	0.0	0.0000	0.2604	-0.3953	0.1667	0.3750
2	-0.3001	1.0000	-0.1574	0.0000	-0.1156	0.3126	0.0000	0.0572	0.1286
3	0.1147	-0.1574	1.0000	0.0	0.4640	0.0299	0.0	0.6882*	0.1147
4	0.0	0.0000	0.0	1.0000	0.2132	0.0000	0.0	0.0	0.3953
5	0.0000	-0.1156	0.4640	0.2132	1.0000	0.0878	0.4264	0.2247	0.3371
6	0.2604	0.3126	0.0299	0.0000	0.0878	1.0000	0.0000	0.4774	0.2604
7	-0.3953	0.0000	0.0	0.0	0.4264	0.0000	1.0000	0.0	0.0
8	0.1667	0.0572	0.6882*	0.0	0.2247	0.4774	0.0	1.0000	0.1667
9	0.3750	0.1286	0.1147	0.3953	0.3371	0.2604	0.0	0.1667	1.0000
10	0.2010	0.0689	-0.2075	0.3178	0.3388	0.3794	0.0000	0.0335	0.4523
11	0.1400	-0.1921	0.0964	0.4428	0.2832	-0.4193	0.0	-0.3267	0.4901
12	-0.2182	-0.4491	-0.1502	0.3450	0.1471	-0.4830	0.3450	-0.2182	0.0546
13	0.2694	0.0924	-0.1236	0.0	-0.2422	0.5378	0.0	0.4191	0.0449
14	0.2500	0.0857	-0.1147	0.3953	0.3371	0.0651	0.0000	-0.1667	0.2500
15	0.2677	-0.2361	-0.1228	0.4837	0.3609	-0.1294	0.0	-0.1784	0.2677
16	0.1696	-0.2327	-0.1751	0.2682	0.4003	-0.1215	0.2682	-0.2545	0.1696
17	-0.0625	-0.1286	-0.1147	0.3953	0.6742*	0.0651	0.3953	-0.1667	0.2500
18	0.1667	-0.2287	-0.0765	0.0	0.0000	-0.3906	0.0	-0.1111	0.1667
19	0.0	0.0000	0.7255*	0.0	0.4264	0.0000	0.5000	0.5270	0.0
20	0.6667*	-0.6288*	0.0765	0.0000	0.2247	-0.0434	0.0000	0.1111	0.2500
21	-0.4193	0.0360	-0.1683	0.3315	0.2120	-0.1774	0.3315	-0.2446	-0.1572
22	0.2100	-0.0480	-0.0964	0.4428	0.4720	0.0547	0.0000	-0.1400	0.2100
23	0.2100	0.4323	-0.0964	0.0000	0.0944	0.4193	0.0000	0.3267	0.2100
24	0.1531	-0.0350	-0.1873	0.3227	0.5505*	0.1063	0.0000	-0.2722	0.4082
25	-0.2500	-0.2287	-0.0765	0.0	0.0000	-0.3906	0.0	-0.1111	-0.2500
26	-0.2500	0.0572	-0.0765	0.0	0.0000	0.0434	0.0	-0.1111	-0.2500

* p less than .001

TABLE 6

Intercorrelations Among Items on the L/D Screen-Pupil Behavior For Normal Students (N=20)

Items	10	11	12	13	14	15	16	17	18
1	0.2010	0.1400	-0.2182	0.2694	0.2500	0.2677	0.1696	-0.0625	0.1667
2	0.0689	-0.1921	-0.4491	0.0924	0.0857	-0.2361	-0.2327	-0.1286	-0.2287
3	-0.2075	0.0964	-0.1502	-0.1236	-0.1147	-0.1228	-0.1751	-0.1147	-0.0765
4	0.3178	0.4428	0.3450	0.0	0.3953	0.4837	0.2682	0.3953	0.0
5	0.3388	0.2832	0.1471	-0.2422	0.3371	0.3609	0.4003	0.6742*	0.0000
6	0.3794	-0.4193	-0.4830	0.5378	0.0651	-0.1294	-0.1215	0.0651	-0.3906
7	0.0000	0.0	0.3450	0.0	0.0000	0.0	0.2682	0.3953	0.0
8	0.0335	-0.3267	-0.2182	0.4191	-0.1667	-0.1784	-0.2545	-0.1667	-0.1111
9	0.4523	0.4901	0.0546	0.0449	0.2500	0.2677	0.1696	0.2500	0.1667
10	1.0000	0.0985	0.2851	0.4152	0.5528*	0.1307	0.3325	0.5528*	-0.3015
11	0.0985	1.0000	0.2750	-0.2766	0.2100	0.2249	0.0831	0.2100	0.1400
12	0.2851	0.2750	1.0000	0.0392	0.2182	0.3171	0.4257	0.4910	0.1455
13	0.4152	-0.2766	0.0392	1.0000	0.1796	-0.1511	-0.1066	-0.0449	-0.1796
14	0.5528	0.2100	0.2182	0.1796	1.0000	0.4971	0.6788*	0.6875*	-0.1667
15	0.1307	0.2249	0.3171	-0.1511	0.4971	1.0000	0.7589*	0.4971	0.5863*
16	0.3325	0.0831	0.4257	-0.1066	0.6786*	0.7589*	1.0000	0.6786*	0.3110
17	0.5528	0.2100	0.4910	-0.0449	0.6875*	0.4971	0.6786*	1.0000	-0.1667
18	-0.3015	0.1400	0.1455	-0.1796	-0.1667	0.5863*	0.3110	-0.1667	1.0000
19	-0.3178	0.0	0.0	0.0	0.0000	0.0	0.0000	0.0000	0.0
20	0.3015	0.3267	0.2182	0.1796	0.1667	0.1784	0.2545	0.1667	0.1111
21	0.3898	0.0147	0.4346	-0.0188	0.4193	0.0882	0.3290	0.4193	-0.2446
22	0.4644	0.1765	0.3361	0.0251	0.8402*	0.6318*	0.6295*	0.8402*	-0.1400
23	0.4644	-0.2157	-0.2750	0.5281	0.4901	-0.0107	0.1544	0.1400	-0.1400
24	0.6975*	0.3430	0.1336	-0.0733	0.6124*	0.4995	0.5887*	0.6124*	0.0680
25	-0.3015	0.1400	0.1455	-0.1796	-0.1667	0.3314	0.0283	-0.1667	0.4444
26	0.0335	-0.3267	0.1455	0.1197	0.2500	0.0765	0.0283	0.2500	-0.1111

TABLE 6

Intercorrelations Among Items on the L/D Screen-Pupil Behavior For Normal Students (N=20)

Items	19	20	21	22	23	24	25	26
1	0.0	0.6667*	-0.4193	0.2100	0.2100	0.1531	-0.2500	-0.2500
2	0.0000	-0.6288*	0.0360	-0.0480	0.4323	-0.0350	-0.2287	0.0572
3	0.7255*	0.0765	-0.1683	-0.0964	-0.0964	-0.1873	-0.0765	-0.0765
4	0.0	0.0000	0.3315	0.4428	0.0000	0.3227	0.0	0.0
5	0.4264	0.2247	0.2120	0.4720	0.0944	0.5505*	0.0000	0.0000
6	0.0000	-0.0434	-0.1774	0.0547	0.4193	0.1063	-0.3906	0.0434
7	0.5000	0.0000	0.3315	0.0000	0.0000	0.0000	0.0	0.0
8	0.5270	0.1111	-0.2446	-0.1400	0.3267	-0.2722	-0.1111	-0.1111
9	0.0	0.2500	-0.1572	0.2100	0.2100	0.4082	-0.2500	-0.2500
10	-0.3178	0.3015	0.3898	0.4644	0.4644	0.6975*	-0.3015	0.0335
11	0.0	0.3267	0.0147	0.1765	-0.2157	0.3430	0.1400	-0.3267
12	0.0	0.2182	0.4346	0.3361	-0 2750	0.1336	0.1455	0.1455
13	0.0	0.1796	-0.0188	0.0251	0.5281	-0.0733	-0.1796	0.1197
14	0.0000	0.1667	0.4193	0.8402*	0.4901	0.6124*	-0.1667	0.2500
15	0.0	0.1784	0.0882	0.6318*	-0.0107	0.4995	0.3314	0.0765
16	0.0000	0.2545	0.3290	0.6295*	0.1544	0.5887*	0.0283	0.0283
17	0.0000	0.1667	0.4193	0.8402*	0.1400	0.6124*	0.1667	0.2500
18	0.0	0.1111	-0.2446	-0.1400	-0.1400	0.0680	0.4444	-0.1111
19	1.000	0.0000	0.0	0.0000	0.0000	-0.3227	0.0	0.0
20	0.0000	1.0000	-0.1048	0.1400	0.1400	0.2722	0.1111	-0.4444
21	0.0	-0.1048	1.0000	0.2789	-0.0147	0.4708	0.1048	0.4543
22	0.0000	0.1400	0.2789	1.0000	0.2157	0.5145	-0.1400	0.3267
23	0.0000	0.1400	-0.0147	0.2157	1.0000	0.2287	-0.1400	-0.1400
24	-0.3227	0.2722	0.4708	0.5145	0.2287	1.0000	0.0680	0.0680
25	0.0	0.1111	0.1048	-0.1400	-0.1400	0.0680	1.0000	-0.1111
26	0.0	-0.4444	0.4543	0.3267	-0.1400	0.0680	-0.1111	1.0000

Item 2 which deals with speech problems including articulation, tone, and volume did not correlate at the .001 level with any other item for either group.

Item which deals with the child's achievement in relationship with his intellectual potential correlated with Items 8 and 19 at the .6882 and .7255 levels respectively for the normal group. Item 8 deals with the child's level of motor coordination, and Item 19 relates to the child's level of social growth and development.

Item 4 which deals with the child's arithmetic ability did not correlate with any other item for either group at the .001 level.

Item 5 which involves the ability to remember and follow instructions given verbally correlated with Items 10 and 20 at the .6977 and .6855 levels respectively for the LD group. Item 10 deals with the ability to recall words and express ideas verbally, and Item 20 deals with Reading Comprehension. For the normal group Item 5 correlated at the .6742 level with Item 17 which deals with the ability to remember sequences.

Item 6 which is the teacher's estimate of the child's handwriting ability and Item 7 which deals with a child's time concept did not correlate with any other item at the .001 level.

As previously indicated, Item 8 correlated with Item 3 at the .001 level of significance.

Item 9, as previously mentioned, correlated with Item 1 at the .6708 level for the LD group. It also correlated with Items 10 and 20 at the .7483 and .8032 levels respectively for the LD group. None of the correlation coefficients for Item 9 reached the .001 level for the normal students.

In addition to the fact that Item 10 correlated with Items 1, 5, and 9 at the .7086, .6977, and .7483 levels respectively for the LD students, it also correlated with Item 20 at the .6011 level. For the normal students it correlated with Items 14 and 24 at the .5528 and .6975 levels respectively.

Item 11 which deals with spelling skills did not correlate with any other item at the .001 level for either group of students.

Item 12 which relates to the child's attention span correlated with Item 16 which deals with the child's ability to attend to major issues while screening out background noises and activities at the .6256 level for the LD group. It did not correlate with any other item at the .001 level for the normal students.

Item 13 which indicates whether the child tends to withdraw, avoid people, new situations, conflict, or difficult tasks did not correlate at the .001 level for either group.

For the LD group Item 14 which deals with reversals of letters and numbers correlated at the .8855 level with Item 22 which deals with the confusion of letters which look alike. For the normal group it correlated with Items 10, 16, 17, 22, and 24 at the .5528, .6786, .6875, .8402, and .6124 levels respectively. Item 10 relates to verbal expression; Item 16 is a measure of the child's attention span; Item 17 indicates the child's ability to remember sequences; and item 24 indicates the frequency at which a child loses his place on the page.

For the LD students item 15 which deals with hyperactivity correlated with item 23, which relates to the child's assuming unusual postures and facial expressions while reading or writing such as blinking, rubbing his eyes etc., at the .5563 level.

It correlated with items 16, 18, and 22 at the .7589, .5863, and .6318 levels respectively for the normal students. Item 16 relates to attending to major issues; Item 18 involves sudden shifts in behavior relating to emotional factors; and Item 22 deals with the confusion of letters which look alike.

As previously indicated, Item 16 correlated with Item 12 at the .6256 level for the LD group and at the .6786 and .7589 levels with Items 14 and 15 respectively for the normal group. It also correlated with Item 12 at the .6256 level for the LD students and with Items 17, 22, and 24 at the .6786, .6295, and .5887 levels respectively for the normal students.

Item 17 correlated with Item 24 at the .6289 level for the LD students. Item 17 deals with remembering sequences, and Item 24 relates to the child's losing his place in reading. As previously mentioned Item 17 correlated with Items 5, 14, and 16 at the .6742, .6875, and .6786 levels respectively for the normal students. With the normal group it also correlated with Items 22 and 24 at the .8402 and .6124 levels respectively.

Item 18, which deals with sudden unexplainable shifts in behavior and emotional outbursts, correlated at the .9009 level with Item 25 which relates to excessively irritable and agressive behavior for the LD students. It correlated at the .5863 level with Item 15 dealing with hyperactivity for the normal group.

As previously mentioned Item 19, which deals with social growth and development, correlated at the .7255 level with Item 3 for the normal students; however it did not correlate with any other item at the .001 level for the LD students.

As previously mentioned Item 20 which relates to reading comprehension correlated with Items 5, 9, and 10 at the .6855, .8032, and .6011 levels respectively for the LD students, and it correlated with Items 1 and 2 at the .6667 and .6288 levels respectively for the normal students.

Item 21 relating to the child's willingness to accept responsibility did not correlate at the .001 level for either group.

As previously mentioned Item 22 relating to the confusion of letters which look alike correlated with Item 14 at the .8855 level for the LD students, and it correlated with Items 14, 15, 16 and 17 at the .8402, .6318, .6295, and .8402 levels respectively for the normal students. As previously indicated, Item 23 dealing with the child's assuming unusual postures when reading or writing correlated at the .5846 level with Item 15 for the LD students; however none of the correlation coefficients for the normal students reached the .001 level of significance.

Item 24, as previously indicated, correlated with Item 17 at the .6289 level for the LD group, and it correlated with Items 5, 10, 14, and 17 at the .5505, .6975, .6124, and .6124 levels respectively for the normal students.

Item 25 dealing with excessive irritability and aggression correlated with Item 18 at the .9009 level for the LD students.

Item 26 relating to the child's complaining of physical problems such as headaches, stomach aches, etc. did not correlate with any other subtest at the .001 level for either group.

The intercorrelations between the LD Screen-Pupil Behavior total score, the Psychologists' rating of students as being LD or normal, and each individual item of the LD Screen-Pupil Behavior were computed for Grades 3, 4, and 5 (See Table 7).

Twenty-three of the twenty-six items of the LD Screen-Pupil Behavior correlated at or above the .001 level with the total score for the check list. Item 3 dealing with the teacher's evaluation of the child's progress in relation to his potential correlated at the .3719 level, Item 8 dealing with motor coordination correlated at the .3299 level, and Item 26 relating to the child's complaints of physical problems during challenging classroom activities correlated at the .4670 level. All of the correlation coefficients, however, are significantly different from 0 at or above the .05 level suggesting that each item of the test is contributing significantly to the total score.

Items 1, 2, 4, 5, 6, 9, 10, 11, 12, 13, 14, 16, 17, 19, 20, 21, 22, and 24 correlated with the Psycholists' Judgement at the .001 level.

TABLE 7

Intercorrelation Matrix for L/D Screen-Pupil Behavior, Total Score and Item Scores and Psychologist Ratings Grades 3,4,5 (N=40)

		L/D Screen-Pupil Behavior Total Score	Psychologist Ratings
Screening Checklist Total Scores		1.0000	0.8034
Psychologist Ratings		0.8034	1.0000
L/D Screen-Pupil Behavior Item Scores	1	0.6398*	0.5315*
	2	0.6740*	0.5678*
	3	0.3719	0.5334
	4	0.7257*	0.6842*
	5	0.7856*	0.6782*
	6	0.6256*	0.4981*
	7	0.6317*	0.4102
	8	0.3299	0.2843
	9	0.8264*	0.7909*
	10	0.8449*	0.7472*
	11	0.7922*	0.7587*
	12	0.8490*	0.7175*
	13	0.5487*	0.5347*
	14	0.7176*	0.5517*
	15	0.7072	0.4469
	16	0.8496*	0.6001*
	17	0.8810*	0.8111*
	18	0.6014*	0.4252
	19	0.6978*	0.5786*
	20	0.8228*	0.8660*
	21	0.6810*	0.5558*
	22	0.8069*	0.6118*
	23	0.6680*	0.4264
	24	0.8107*	0.6001*
	25	0.6007*	0.4271
	26	0.4670	0.3380

* p less than .001

A t test was applied to the scores for the two groups, LD and normal, for the second grade students and the third, fourth, and fifth grade students on the Illinois Test of Psycholinguistic Abilities, Wide Range Achievement Test (WRAT), Bender-Gestalt Test, and Wechsler Intelligence Scale for Children (WISC).

For the second grade students a significant difference at the .05 level was indicated on the WISC Performance Scale Score, the WISC subtests Comprehension and Object Assembly, and WRAT Arithmetic. A significant difference between the two groups at the .02 level was indicated on the WISC Information subtest. The .01 level of significance was indicated in the variance between the two groups on the ITPA Mean Scaled Score, ITPA subtests Auditory Association and Verbal Expression, WISC subtests Arithmetic and Vocabulary. The two groups differed at the .001 level of significance on the WRAT Reading and Spelling subtests, the WISC Full Scale Score and Verbal Scale Score, and the WISC subtest Similarities. There was not a significant difference between the two groups of second graders on the ITPA subtests Auditory Reception, Visual Reception, Visual Association, Manual Expression, Visual Closure, Auditory Sequential Memory, and Visual Sequential Memory, Bender-Gestalt Error Score, WISC subtests Digit Span, Picture Completion, Block Design, and Coding.

For the third, fourth, and fifth grade students the LD group and normal group differed at the .05 level on their Bender-Gestalt Test error score. The difference between the two groups on the WISC Performance Scale Score and WISC subtests Picture Arrangement and Coding was at the .02 level of significance. The difference between the two groups on the ITPA subtest Grammatic Closure and the WISC subtests Information, Comprehension, and Similarities was at the .01 level of significance. The .001 level of significance was indicated in the variability between the two groups on the ITPA subtest Auditory Association, the WRAT Reading, Spelling, and Arithmetic Scores, WISC Full Scale Score, WISC Verbal Scale Score, WISC subtests Arithmetic and Vocabulary.

There was not a significant difference between the two groups on the ITPA subtests Auditory Reception, Visual Reception, Visual Association, Verbal Expression, Manual Expression, Visual Closure, Auditory Sequential Memory and Visual Sequential Memory, WISC subtests Digit Span, Picture Completion, Block Design, and Object Assembly.

Since the t tests had indicated a significant difference between the two groups on the WISC Full Scale Score at the .001 level for the third, fourth, and fifth grade students, it was felt that the LD Screen instruments may have been measuring general intellectual development rather than identifying the presence of a learning disability per se. In order to clarify this question, the intercorrelation coefficients between the screening instruments and the WISC scores were derived. For the LD Screen-Pupil Behavior the highest correlation was .4969 ($P<.001$) with the WISC Full Scale Score suggesting that approximately .25 of the variability in the screening instrument can be attributed to general intellectual development. The correlation coefficient between the LD Screen-Pupil Behavior and the WISC Verbal Scale Score was .4623 (P .01) and the WISC Performance Scale Score was .3508 ($P<.05$).

The correlation coefficients between the Syllabication "A" and the WISC Full Scale Score, Verbal Scale Score, and Performance Scale Score was .4524 (P .01), .5109 (P .001), and .2120 respectively, suggesting that general intellectual development explains about twenty percent or less of the variability of the screening instrument.

Syllabication "B" correlated with the WISC Full Scale Score, Verbal Scale Score, and Performance Scale Scores at the .4479 ($P<.01$), .4066 ($P<.01$), .3450 ($P<.05$) levels respectively again suggesting that general intellectual development explains about twenty percent or less of what Syllabication "B" is measuring.

Myklebust's Pupil Behavior Rating Scale correlated with the WISC Full Scale Score, Verbal Scale Score, and Performance Scale Score at the .5003 ($P<.001$),

.4593 ($P < .01$), and .3698 ($P < .05$) levels respectively. Here again, general intellectual development explains about twenty-five percent or less of what the test is measuring.

These results suggest that even though all four of the tests are related to general intellectual development, all four are measuring factors which are independent of the child's level of intellectual functioning as measured by the WISC.

CONCLUSIONS AND RECOMMENDATIONS

Results of the Project CHILD Screening Study Phase II suggest that the LD Screen instruments may be used very effectively and economically to screen large school populations for learning problems at the second, third, fourth, and fifth grade levels. The battery of tests require a minimum of teacher and student time in administration and scoring. Although all three instruments are sensitive to general intellectual development, this study has indicated that intelligence accounts for only twenty to twenty-five percent of the variability of the LD Screen instruments. Using the testing instruments described in this study, it was found that between six and seven percent of the second, third, and fourth grade students and three percent of the fifth grade students scored one standard deviation below the mean on all the screening instruments. The lower percentage at the fifth grade resulted from the fact that the ceiling for the LD Screen-Syllabication may be too low for these students. These results suggest, however, that a school district could use these instruments to screen their entire second, third, and fourth grade populations and identify six to seven percent of their students for further in-depth evaluations. At the fifth grade level it may be necessary to rely on the LD Screen-Pupil Behavior in cases where the child does not score one standard deviation below the mean on the LD Screen-Syllabication but does score one standard deviation below the mean on LD Screen-Pupil Behavior.

Since the screening instruments were not administered to kindergarten nor first grade students, further research is recommended in the use of the LD Screen-Pupil Behavior with children at the younger ages. Since the vocabulary used for the LD Screen-Syllabication were taken from the third grade level, further extension of this instrument both downward and upward is recommended. Using first grade vocabulary, an instrument might be developed for use at the end of the first grade. Since the ceiling did not appear to be high enough for the fifth grade students, another instrument might be developed using fifth grade vocabulary to more effectively screen the fifth grade and perhaps sixth grade populations.

Since language disabilities frequently go undetected until the child has become completely alienated from school by several years of constant failure, these instruments should make a significant contribution in the area of early identification of children having learning disabilities. Early identification and intervention should be helpful in the prevention of educational casualties.

TABLE 8

Mean and Standard Deviations on Screening Instruments
For LD and Normal Students Combined

Instrument	Mean		Standard Deviation	
	Grade 2	Grade 3,4,5	Grade 2	Grade 3,4,5
Screening Checklist	48.85	49.43	14.85	12.70
Syllabication Test A	10.77	14.35	4.88	4.02
Syllabication Test B	10.62	12.98	4.29	3.89
Myklebust Test	57.46	59.23	20.02	14.87
ITPA TEST DATA				
Mean Scale Score	34.15	34.50	3.34	3.91
Auditory Perception	32.31	29.73	4.25	7.89
Visual Perception	33.00	35.70	-6.08	7.42
Auditory Association	31.69	33.23	5.60	9.76
Visual Association	35.46	35.70	5.22	5.44
Verbal Expression	32.54	32.50	6.37	4.84
Manual Expression	36.31	39.55	5.91	5.32
Grammatic Closure	31.77	30.20	5.18	8.70
Visual Closure	37.85	36.63	4.36	6.53
Auditory Sequential Memory	37.54	37.40	5.80	7.85
Visual Sequential Memory	33.38	36.23	5.01	7.42
Bender Error Score	4.46	2.48	4.25	2.21
WRAT TEST DATA				
Reading	97.85	95.75	15.76	19.93
Spelling	96.08	90.15	12.87	13.64
Arithmetic	92.54	91.25	6.57	7.64

TABLE 9

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Mean Scale Score

Group	M	SD	t	P
LD	32.56	2.01	3.2939	.01
Normal	37.00	3.08		

TABLE 10

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Auditory Reception

Group	M	SD	t	P
LD	32.11	4.91	0.2913	NS
Normal	32.80	2.39		

TABLE 11

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Visual Reception

Group	M	SD	t	P
LD	31.89	6.88	0.6161	NS
Normal	34.00	4.30		

TABLE 12

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Auditory Association

Group	M	SD	t	P
LD	29.00	3.43	3.0653	.01
Normal	36.20	5.45		

TABLE 13

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Visual Association

Group	M	SD	t	P
LD	34.33	4.00	1.2625	NS
Normal	37.80	6.38		

TABLE 14

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Verbal Expression

Group	M	SD	t	P
LD	29.22	4.12	3.8716	.01
Normal	38.40	4.51		

TABLE 15

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Manual Expression

Group	M	SD	t	P
LD	35.11	6.21	1.4225	NS
Normal	39.60	4.34		

TABLE 16

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Grammatic Closure

Group	M	SD	t	P
LD	28.56	3.32	4.7333	.001
Normal	36.80	2.68		

TABLE 17

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Visual Closure

Group	M	SD	t	P
LD	37.22	4.02	0.3933	NS
Normal	38.20	5.22		

TABLE 18

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Auditory Sequential Memory

Group	M	SD	t	P
LD	36.22	4.66	1.2408	NS
Normal	40.00	6.78		

TABLE 19

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: ITPA Visual Sequential Memory

Group	M	SD	t	P
LD	32.33	5.48	1.2365	NS
Normal	35.60	2.70		

TABLE 20

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: Bender Error Score

Group	M	SD	t	P
LD	5.44	4.69	1.1760	NS
Normal	2.80	2.17		

TABLE 21

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WRAT Reading

Group	M	SD	t	P
LD	87.67	4.90	8.7983	.001
Normal	116.00	7.21		

TABLE 22

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WRAT Spelling

Group	M	SD	t	P
LD	88.11	6.09	5.6169	.001
Normal	109.40	8.02		

TABLE 23

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Full Scale

Group	M	SD	t	P
LD	92.22	8.60	4.3109	.001
Normal	112.20	7.69		

TABLE 24

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Verbal

Group	M	SD	t	P
LD	91.44	9.37	4.4552	.001
Normal	115.00	9.70		

TABLE 25

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Performance

Group	M	SD	t	P
LD	94.56	6.95	2.5222	.05
Normal	106.80	11.43		

TABLE 26

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Information

Group	M	SD	t	P
LD	8.67	2.92	2.9021	.02
Normal	13.00	2.12		

TABLE 27

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Comprehension

Group	M	SD	t	P
LD	8.67	3.24	2.4279	.05
Normal	12.40	1.34		

TABLE 28

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Arithmetic

Group	M	SD	t	P
LD	8.33	1.32	3.2869	.01
Normal	12.00	2.92		

TABLE 29

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Similarities

Group	M	SD	t	P
LD	7.89	2.03	4.9642	.001
Normal	13.00	1.41		

TABLE 30

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Vocabulary

Group	M	SD	t	P
LD	8.89	1.76	3.4422	.01
Normal	12.20	1.64		

TABLE 31

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Digit Span

Group	M	SD	t	P
LD	9.25	1.58	2.1346	NS
Normal	11.80	2.77		

TABLE 32

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Picture Completion

Group	M	SD	t	P
LD	9.44	2.13	.1233	NS
Normal	9.60	2.51		

TABLE 33

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Picture Arrangement

Group	M	SD	t	P
LD	8.44	2.60	2.8047	.02
Normal	12.80	3.11		

TABLE 34

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Block Design

Group	M	SD	t	P
LD	10.44	1.81	.5075	NS
Normal	11.00	2.24		

TABLE 35

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Object Assembly

Group	M	SD	t	P
LD	9.11	1.96	2.1937	.05
Normal	12.00	3.00		

TABLE 36

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WISC Coding

Group	M	SD	t	P
LD	7.67	3.74	.8641	NS
Normal	9.40	3.29		

TABLE 37

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 2

ON TEST VARIABLE: WRAT Arithmetic

Group	M	SD	t	P
LD	90.11	5.93	2.1490	.05
Normal	96.80	4.82		

TABLE 38

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: ITPA Mean Scale Score

Group	M	SD	t	P
LD	33.77	3.45	2.7415	.01
Normal	36.80	3.63		

TABLE 39

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: ITPA Auditory Reception

Group	M	SD	t	P
LD	28.42	7.63	1.8108	NS
Normal	32.73	7.45		

TABLE 40

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: ITPA Visual Perception

Group	M	SD	t	P
LD	36.48	6.65	.1201	NS
Normal	36.20	9.09		

TABLE 41

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: ITPA Auditory Association

Group	M	SD	t	P
LD	30.77	9.29	3.5212	.001
Normal	40.00	5.76		

TABLE 42

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: ITPA Visual Association

Group	M	SD	t	P
LD	35.48	5.36	.7560	NS
Normal	36.80	5.89		

TABLE 43

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5 ON TEST VARIABLE: ITPA Verbal Expression

Group	M	SD	t	P
LD	32.00	4.91	1.0157	NS
Normal	33.53	4.56		

TABLE 44

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5 ON TEST VARIABLE: ITPA Manual Expression

Group	M	SD	t	P
LD	39.71	5.72	.2476	NS
Normal	40.13	4.79		

TABLE 45

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: ITPA Grammatic Closure

Group	M	SD	t	P
LD	28.29	8.51	3.3338	.01
Normal	36.40	5.74		

TABLE 46

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: ITPA Visual Closure

Group	M	SD	t	P
LD	36.16	6.34	.9665	NS
Normal	37.47	5.97		

TABLE 47

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: ITPA Auditory Sequential Memory

Group	M	SD	t	P
LD	35.71	8.17	1.0255	NS
Normal	38.20	6.66		

TABLE 48

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: Visual Sequential Memory (ITPA)

Group	M	SD	t	P
LD	34.90	5.56	1.6177	NS
Normal	38.40	9.06		

TABLE 49

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: Bender Error Score

Group	M	SD	t	P
LD	3.19	2.37	2.1702	.05
Normal	1.67	1.91		

TABLE 50

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WRAT Reading

Group	M	SD	t	P
LD	84.58	10.09	8.2040	.001
Normal	115.53	15.30.		

TABLE 51

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WRAT Spelling

Group	M	SD	t	P
LD	83.13	8.42	7.2257	.001
Normal	103.07	9.49		

TABLE 52

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WRAT Arithmetic

Group	M	SD	t	P
LD	88.58	5.85	4.4053	.001
Normal	97.07	6.68		

TABLE 53

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Full Scale Score

Group	M	SD	t	P
LD	95.74	9.26	4.5775	.001
Normal	109.07	9.23		

TABLE 54

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Verbal Scale Score

Group	M	SD	t	P
LD	92.39	11.32	4.5405	.001
Normal	108.27	10.68		

TABLE 55

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Performance Scale Score

Group	M	SD	t	P
LD	100.06	10.30	2.5262	.02
Normal	108.27	10.37		

TABLE 56

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Information

Group	M	SD	t	P
LD	8.16	2.53	3.2124	.01
Normal	10.73	2.58		

TABLE 57

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Comprehension

Group	M	SD	t	P
LD	8.94	2.82	3.1091	.01
Normal	11.40	1.73		

TABLE 58

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Arithmetic

Group	M	SD	t	P
LD	8.10	2.10	4.3672	.001
Normal	10.93	1.98		

TABLE 59

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Similarities

Group	M	SD	t	P
LD	9.87	2.63	3.3771	.01
Normal	12.67	2.64		

TABLE 60

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Vocabulary

Group	M	SD	t	P
LD	8.29	2.49	4.1567	.001
Normal	11.60	2.61		

TABLE 61

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Digit Span

Group	M	SD	t	P
LD	8.83	2.07	1.8419	NS
Normal	10.20	2.81		

TABLE 62

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Picture Completion

Group	M	SD	t	P
LD	10.23	2.40	1.0132	NS
Normal	11.07	3.08		

TABLE 63

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Picture Arrangement

Group	M	SD	t	P
LD	9.84	2.30	2.6485	.02
Normal	12.00	3.14		

TABLE 64

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Block Design

Group	M	SD	t	P
LD	9.90	2.39	.9834	NS
Normal	10.67	2.64		

TABLE 65

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Object Assembly

Group	M	SD	t	P
LD	10.68	2.39	.3654	NS
Normal	10.40	2.47		

TABLE 66

MEANS, STANDARD DEVIATIONS, AND t-VALUES FOR LD AND NORMAL STUDENTS, GRADE 3-5

ON TEST VARIABLE: WISC Coding

Group	M	SD	t	P
LD	9.79	2.65	2.5020	.02
Normal	11.80	2.24		

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2. L/D Screen Classification
3. Psychologists' Ratings
4. L/D Screen Syllabication A
5. L/D Screen Syllabication B
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WISC Scores

7. Full Scale Score
8. Verbal Scale Score
9. Performance Scale Score
10. Information
11. Comprehension
12. Arithmetic
13. Similarities
14. Vocabulary
15. Digit Span
16. Picture Completion
17. Picture Arrangement
18. Block Design
19. Object Assembly
20. Coding

TABLE 67

Intercorrelation Matrix of Screening Variables and WISC Scores for Grades 3,4,5 (N=40)

	1	2	3	4	5	6	7	8	9	10
1	1.0000	0.8502	0.8034	0.7299	0.7777	0.9061	0.4969	0.4623	0.3508	0.4303
2	0.8502	1.0000	0.8563	0.7638	0.7856	0.8850	0.5817	0.5927	0.3560	0.4916
3	0.8034	0.8563	[illegible]	0.5529	0.7131	0.8110	0.4524	0.5109	0.2120	0.4647
4	0.7299	0.7638	0.5529	1.0000	0.7206	0.6704	0.3582	0.3705	0.1984	0.3093
5	0.7777	0.7856	0.7131	0.7206	1.0000	0.7842	0.4479	0.4066	0.3450	0.3977
6	0.9061	0.8850	0.8110	0.6704	0.7842	1.0000	0.5003	0.4593	0.3698	0.3948
7	0.4969	0.5817	0.4524	0.3582	0.4479	0.5003	1.0000	0.8790	0.7869	0.7572
8	0.4623	0.5927	0.5109	0.3705	0.4066	0.4593	0.8790	1.0000	0.3991	0.8218
9	0.3508	0.3560	0.2120	0.1984	0.3450	0.3698	0.7869	0.3991	1.0000	0.3994
10	0.4303	0.4916	0.4647	0.3093	0.3977	0.3948	0.7572	0.8218	0.3994	1.0000
11	0.3194	0.4456	0.3882	0.3160	0.3566	0.3039	0.7246	0.7255	0.4556	0.5912
12	0.4779	0.5683	0.5001	0.3743	0.3566	0.5075	0.6900	0.7383	0.3597	0.5730
13	0.4002	0.4730	0.4324	0.2225	0.2173	0.3233	0.7091	0.8117	0.3118	0.5939
14	0.4176	0.5868	0.5212	0.4201	0.4801	0.4513	0.8052	0.8745	0.4216	0.6456
15	0.2430	0.2483	0.1736	0.2006	0.2302	0.2727	0.5833	0.6834	0.2360	0.4692
16	0.0384	0.1396	0.0304	0.1591	0.1614	0.1484	0.4471	0.3070	0.4707	0.2950
17	0.3485	0.3602	0.2972	0.1580	0.2896	0.2856	0.5069	0.2897	0.6035	0.2187
18	0.1400	0.2057	0.0200	0.0602	0.1947	0.1567	0.6500	0.3893	0.7602	0.3181
19	0.0753	-0.0540	-0.1472	-0.1256	-0.0193	0.0603	0.3571	0.0851	0.5861	0.0865
20	0.3380	0.3277	0.3170	0.2087	0.2649	0.3685	0.2752	0.1034	0.3762	0.2197

TABLE 67

Intercorrelation Matrix of Screening Variables and WISC Scores for Grades 3,4,5 (N=40)

	11	12	13	14	15	16	17	18	19	20
1	0.3194	0.4779	0.4002	0.4176	0.2430	0.0384	0.3485	0.1400	0.0753	0.3380
2	0.4456	0.5683	0.4730	0.5868	0.2483	0.1396	0.3602	0.2057	-0.0540	0.3277
3	0.3882	0.5001	0.4324	0.5212	0.1736	0.0304	0.2972	0.0200	-0.1472	0.3170
4	0.3160	0.3743	0.2225	0.4201	0.2006	0.1591	0.1580	0.0602	-0.1256	0.2087
5	0.3566	0.3566	0.2173	0.4801	0.2302	0.1614	0.2896	0.1947	-0.0193	0.2649
6	0.3039	0.5075	0.3233	0.4513	0.2727	0.1484	0.2856	0.1567	0.0603	0.3685
7	0.7246	0.6900	0.7091	0.8052	0.5833	0.4471	0.5069	0.6500	0.3571	0.2752
8	0.7255	0.7383	0.8117	0.8745	0.6834	0.3070	0.2897	0.3893	0.0851	0.1034
9	0.4556	0.3597	0.3118	0.4216	0.2360	0.4707	0.6035	0.7602	0.5861	0.3762
10	0.5912	0.5730	0.5939	0.6456	0.4692	0.2950	0.2187	0.3181	0.0865	0.2197
11	1.0000	0.5648	0.5357	0.6455	0.4268	0.2043	0.3324	0.3129	0.0074	0.1963
12	0.5648	1.0000	0.5683	0.5721	0.4532	0.1375	0.4403	0.2078	-0.0916	0.1849
13	0.5357	0.5683	1.0000	0.6912	0.3740	0.0652	0.2643	0.3530	0.1354	0.0770
14	0.6455	0.5721	0.6912	1.0000	0.5905	0.3799	0.2694	0.4345	0.0216	0.0541
15	0.4268	0.4532	0.3740	0.5905	1.0000	0.4481	0.0745	0.1730	0.0669	-0.1229
16	0.2043	0.1375	0.0652	0.3799	0.4481	1.0000	-0.0306	0.3979	0.1270	-0.1448
17	0.3324	0.4403	0.2643	0.2694	0.0745	-0.0306	1.0000	0.3426	0.2255	0.0746
18	0.3129	0.2078	0.3530	0.4345	0.1730	0.3979	0.3426	1.0000	0.5280	0.0498
19	0.0074	-0.0916	0.1354	0.0216	0.0669	0.1270	0.2255	0.5280	1.0000	0.0916
20	0.1963	0.1849	0.0770	0.0541	-0.1229	-0.1448	0.0746	0.0498	0.0916	1.0000

TABLE 68

MEANS AND STANDARD DEVIATIONS FOR WISC AND LD/SCREEN-PUPIL BEHAVIOR VARIABLES FOR GRADES 3,4,5

Test	Means	Standard Deviations
Screening Checklist, Total Score	46.23	12.03
Syllabication Test A	14.35	4.02
Syllabication Test B	12.98	3.89
Myklebust Test	59.23	14.87
WISC		
Full Scale	100.55	11.48
Verbal	98.13	13.42
Performance	103.08	11.44
Information	8.93	2.89
Comprehension	9.83	2.77
Arithmetic	9.18	2.43
Similarities	10.88	2.97
Vocabulary	9.33	3.04
Digit Span	9.43	2.45
Picture Completion	10.58	2.76
Picture Arrangement	10.68	2.89
Block Design	10.00	2.54
Object Assembly	10.58	2.54
Coding	10.70	2.63

APPENDIX A

L/D SCREEN - PUPIL BEHAVIOR

PROJECT CHILD
L/D SCREEN - PUPIL BEHAVIOR

TO THE TEACHER:

The purpose of the Screening Checklist for Learning Disabilities is to identify children who have deficits in learning.

Adequate opportunity for observation of the student should be a prerequisite for using the checklist. Care and consideration should be given to each item as it relates to the child being evaluated.

A rating of 1, 2, or 3 should be given on each item by circling the appropriate number. Upon completion of the checklist, the circled numbers should be added and the total should be recorded where rating score is indicated.

PROJECT CHILD

L/D SCREEN - PUPIL BEHAVIOR

NAME______________________________ DATE______________________________

SCHOOL____________________________ RATING SCORE______________________

RATING

GENERAL INTELLIGENCE APPEARS TO BE

Below average 1

Average 2

Above average 3

SPEECH IS CHARACTERIZED BY ARTICULATION PROBLEMS, UNUSUAL TONAL QUALITY, CLUTTERING, OR VOLUME CHANGES

Frequently 1

Occasionally 2

Rarely 3

ACTUAL SCHOOL ACHIEVEMENT IN COMPARISON WITH ABILITY TO LEARN APPEARS TO BE

Significantly below expectations 1

Average for abilities 2

Superior to what might be expected for one of his abilities 3

ABILITY IN ARITHMETIC MAY BEST BE DESCRIBED AS

Below average for age and/or grade placement 1

Average for age and/or grade placement 2

Above average for age and/or grade placement 3

HAS DIFFICULTY REMEMBERING AND FOLLOWING INSTRUCTIONS GIVEN VERBALLY

Frequently 1

Occasionally 2

Rarely 3

HANDWRITING MAY BEST BE DESCRIBED AS

Below average for age and/or grade placement 1

Average for age and/or grade placement . . . .

Above average for age and/or grade placement 3

ABILITY TO DEVELOP A CONCEPT OF TIME--INCLUDING TELLING TIME AND THE AWARENESS OF THE PASSAGE OF TIME

Significantly inadequate 1
Adequate 2
Superior 3

MOTOR COORDINATION CAN BEST BE DESCRIBED AS

Clumsy, awkward 1
Average for age 2
Superior for age 3

WORD RECOGNITION IN READING MAY BEST BE DESCRIBED AS

Below average for age and/or grade placement 1
Average for age and/or grade placement 2
Above average for age and/or grade placement 3

HAS DIFFICULTY RECALLING WORDS AND EXPRESSING IDEAS VERBALLY

Frequently 1
Occasionally 2
Rarely 3

SPELLING SKILLS MAY BEST BE DESCRIBED AS

Below average for age and/or grade placement 1
Average for age and/or grade placement 2
Above average for age and/or grade placement 3

EXHIBITS VERY LIMITED ATTENTION SPAN BEING UNABLE TO ATTEND TO A TASK FOR A REASONABLE LENGTH OF TIME

Frequently 1
Occasionally 2
Rarely 3

TENDS TO BE WITHDRAWN, AVOIDING PEOPLE, NEW SITUATIONS, CONFLICT, OR DIFFICULT TASKS

Frequently 1
Occasionally 2
Rarely 3

REVERSES LETTERS, WORDS, OR NUMBERS IN ARITHMETIC, READING, WRITING, AND/OR SPELLING, SUCH AS d FOR b, n FOR u, was FOR saw, 14 FOR 41

Frequently	1
Occasionally	2
Rarely	3

APPEARS TO BE HYPERACTIVE, i.e. GETTING OUT OF HIS SEAT, TALKING TO OTHER CHILDREN, SHARPENING PENCIL, GOING TO RESTROOM, SHUFFLING FEET, TAPPING HIS PENCIL EXCESSIVELY

Frequently	1
Occasionally	2
Rarely	3

APPEARS TO BE UNABLE TO KEEP HIS ATTENTION ON THE MAJOR ISSUE WHILE IGNORING BACKGROUND NOISES AND ACTIVITIES

Frequently	1
Occasionally	2
Rarely	3

FAILS TO REMEMBER SEQUENCES SUCH AS THE ORDER OF LETTERS IN WORDS, NUMBERS IN SEQUENCE, EVENTS IN SEQUENCE, ETC.

Frequently	1
Occasionally	2
Rarely	3

BEHAVIOR IS CHARACTERIZED BY SUDDEN UNEXPLAINABLE SHIFTS IN EMOTIONAL STATE BEING CHARACTERIZED BY SUDDEN TEMPER TANTRUMS, EMOTIONAL OUTBURSTS, ETC.

Frequently	1
Occasionally	2
Rarely	3

SOCIAL ADJUSTMENT AND MATURATION MAY BE BEST DESCRIBED AS

Immature for chronological age	1
Average for chronological age	2
Above average for chronological age	3

READING COMPREHENSION IS

Below average for chronological age and/or grade placement	1
Average for chronological age and/or grade placement	2
Above average for chronological age and/or grade placement	3

FAILS TO VOLUNTEER FOR AND ACCEPT RESPONSIBILITIES

Frequently	1
Occasionally	2
Rarely	3

CONFUSES LETTERS WHICH LOOK ALIKE

Frequently	1
Occasionally	2
Rarely	3

ASSUMES UNUSUAL POSTURES WHEN READING OR WRITING, SUCH AS BLINKING OR RUBBING EYES, TILTING HEAD TO ONE SIDE, HOLDING MATERIAL TOO CLOSE, OR ASSUMING UNUSUAL FACIAL EXPRESSIONS

Frequently	1
Occasionally	2
Rarely	3

LOSES HIS PLACE ON THE PAGE

Frequently	1
Occasionally	2
Rarely	3

APPEARS TO BE EXCESSIVELY IRRITABLE AND AGGRESSIVE, SULKING, PICKING FIGHTS, RESISTING AUTHORITY FIGURES

Frequently	1
Occasionally	2
Rarely	3

COMPLAINS OF PHYSICAL PROBLEMS SUCH AS HEADACHES, STOMACH ACHES, ETC. ESPECIALLY DURING CLASSROOM ACTIVITIES WHICH HE FINDS MOST CHALLENGING

Frequently	1
Occasionally	2
Rarely	3

____

TOTAL SCORE

APPENDIX B

L/D SCREEN-SYLLABICATION

LD/SCREEN-SYLLABICATION

Teacher Instructions

Form A

1. Pass out Form A
2. Have the student record Name, Date and Teacher's Name in the appropriate spaces.
3. Read directions orally
4. Do examples A, B, and C on the board with children
5. Have children complete test-front and back (No time limit)
6. Collect test sheets

LD/SCREEN-SYLLABICATION

Form A

NAME________________________________ TEACHER'S NAME______________________

DATE________________________________

I. Directions:

Look at each word. Count the number of parts (syllables) that you hear in that word.

Blacken the circle in front of the number you counted.

EXAMPLE:

A. UNTIL	○ 1	○ 2	○ 3
B. BAT	○ 1	○ 2	○ 3
C. COMPANY	○ 1	○ 2	○ 3

1. BALL	○ 1	○ 2	○ 3
2. BICYCLE	○ 1	○ 2	○ 3
3. TOWER	○ 1	○ 2	○ 3
4. COURSE	○ 1	○ 2	○ 3
5. LEMONADE	○ 1	○ 2	○ 3
6. ELEVEN	○ 1	○ 2	○ 3
7. ANGRY	○ 1	○ 2	○ 3
8. LONG	○ 1	○ 2	○ 3
9. DANGER	○ 1	○ 2	○ 3
10. BANANA	○ 1	○ 2	○ 3

(over)

11. EIGHT	○ 1	○ 2	○ 3
12. ANOTHER	○ 1	○ 2	○ 3
13. FENCE	○ 1	○ 2	○ 3
14. HAPPY	○ 1	○ 2	○ 3
15. FINGER	○ 1	○ 2	○ 3
16. TERRIBLE	○ 1	○ 2	○ 3
17. ABLE	○ 1	○ 2	○ 3
18. SWEET	○ 1	○ 2	○ 3
19. YESTERDAY	○ 1	○ 2	○ 3
20. LESSON	○ 1	○ 2	○ 3

LD/SCREEN-SYLLABICATION

Teacher Instructions

Form B

1. Pass out Form B
2. Have the student record Name, Date and Teacher's Name in the appropriate spaces
3. Read directions orally.
4. Do examples A and B on the board with children
5. Have children complete test-front and back (No time limit)
6. Collect test sheets

LD SCREEN-SYLLABICATION

BEST COPY AVAILABLE

Form B

NAME________________________________ TEACHER'S NAME____________________________

DATE________________________________

II. Directions:

Look at the first word in each row. Then find the word that is correctly separated into parts (syllables) and blacken the circle in front of it.

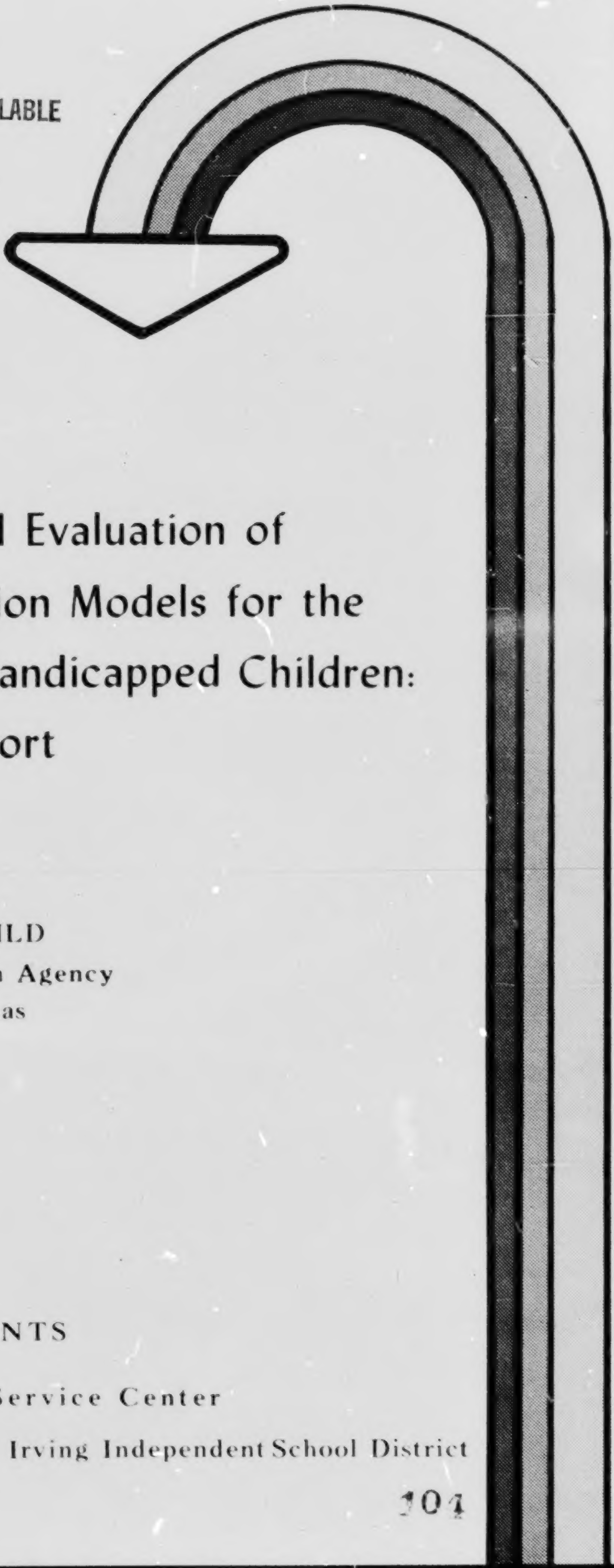
EXAMPLE:

A.	TODAY	○ Tod-ay	○ To-day	○ To-da-y
B.	DISCOVER	○ Di-sco-ver	○ Disc-over	○ Dis-cov-er

1.	BIRTHDAY	○ Birth-day	○ Bir-thd-ay	○ Bi-rth-day
2.	PICNIC	○ Pic-ni-c	○ Picn-ic	○ Pic-nic
3.	PENNY	○ Penn-y	○ Pen-ny	○ P-enn-y
4.	WOMAN	○ Wo-man	○ Wom-an	○ W-om-an
5.	PENCIL	○ Penc-il	○ Pen-ci-l	○ Pen-cil
6.	EMPTY	○ Em-pt-y	○ Emp-ty	○ E-mp-ty
7.	TOGETHER	○ To-geth-er	○ Tog-eth-er	○ T-og-ether
8.	MAGIC	○ [illegible] gic	○ M-ag-ic	○ Mag-ic
9.	ANIMAL	○ An-i-mal	○ Ani-ma-l	○ A-nim-al
10.	BEAUTIFUL	○ B-eaut-iful	○ Beau-ti-ful	○ Bea-uti-ful

(over)

11.	ELEPHANT	○ Ele-pha-nt	○ El-eph-ant	○ El-e-phant
12.	FARTHER	○ Far-ther	○ F-ar-ther	○ Fa-rth-er
13.	TOMORROW	○ Tom-o-rrow	○ Tom-orr-ow	○ To-mor-row
14.	REMEMBER	○ Rem-ember	○ Re-mem-ber	○ R-emem-ber
15.	TELEPHONE	○ Te-le-phone	○ T-elep-hone	○ Tel-e-phone
16.	WONDERFUL	○ Wo-nde-rful	○ Won-der-ful	○ Wond-erful
17.	PRINCESS	○ Prin-cess	○ P-ri-ncess	○ Pr-in-cess
18.	SECRET	○ Se-c-ret	○ Se-cret	○ S-ecr-et
19.	ADVENTURE	○ Adv-ent-ure	○ Ad-ven-ture	○ Adve-nture
20.	DELICIOUS	○ D-elic-ious	○ Deli-cious	○ De-li-cious



The Development and Evaluation of Three Discrete Intervention Models for the Habilitation of Language Handicapped Children: Final Report

Project CHILD
Texas Education Agency
Austin, Texas

PARTICIPANTS

Region 10 Education Service Center

Dallas Independent School District
Irving Independent School District

THE DEVELOPMENT AND EVALUATION
OF
THREE DISCRETE INTERVENTION MODELS
FOR THE
HABILITATION OF LANGUAGE HANDICAPPED CHILDREN

PROJECT CHILD

Texas Education Agency

Austin, Texas

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CHAPTER I

INTRODUCTION

The literature regarding remediation of language disorders, learning disabilities, and central processing dysfunctions reveals a paucity of information upon which to base selection of an instructional model. Part of this problem stems from the fact that in the past many of the intervention models have been either inappropriate for public school implementation, inadequately described, or unsupported by research data.

Examination of existing intervention models revealed three models which seem to be located at approximately equidistant points on a single continuum, from linear-rigid on the one end to non-linear-flexible at the other pole. Selection of these instructional approaches consequently offered the distinct research advantage of enabling the investigator not only to make statements about the efficacy of the particular programs but also through interpolation of results to make statements about programs which might also be located on this continuum but in positions different from the three models investigated.

A description of the three programs, an explanation of the continuum upon which they can be located, and the rationale for so locating them follows:

Description Of The Instructional Programs

Alphabetic, Phonetic, Structural Linguistic Approach

The Alphabetic, Phonetic, Structural Linguistic Approach to Literacy (APSL) program is a highly structured, uniformly applied, linearly sequenced instructional program. Its uniformity, structure, and linearity are based on the assumption that language disability is a unidimensional problem and that a unidimensional intervention is therefore appropriate.

APSL materials and methodology present language as a series of consistent patterns of visual, auditory, and oral communications stimuli; the individual stimulus and correct response can be committed to memory and only gradually is the learner required to master the system of language so that he can apply the generalization, or rule, to an unknown stimulus and determine an appropriate response.

Each stimulus is presented on a multi-sensory basis, utilizing the child's ability to learn by seeing, hearing, and speaking. Tactile learning is also given much significance in that rough surfaced materials are used continuously for the child to reproduce written symbols, placing his finger on the abrasive surface to maximize the sensation of touch.

This program is characterized by much repetion and drill, largely based on an assumption that the language disabled child relies heavily on memory for all learning. In the APSL approach this is typified in constant drill and practice, both written and oral, on such items as word families, i.e., sin, pin, tin. Thus the child writes, reads, hears, and says the letters, words, patterns, and rules repeatedly.

The starting point for each child is the same in this instructional program. Once he has been identified as having a language disability, he begins with basic letter recognition, alphabetic sequence, and sound-symbol relationships. Each student proceeds directly through the APSL materials with no variation. Permitted individualization is limited to one dimension; that is, rate of progress.

An integral feature of the APSL program is individual instruction on the basic language materials. This is believed to be essential for pacing, for immediate reinforcement or correction, and for maintaining attention to the learning task.[1]

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[1] A more complete description of the APSL model can be found in the publication "Project CHILD -- The Intervention Models." (See Appendix A)

Programmed Instruction Approach

The Programmed Instruction (PI) approach is a structured, linearly sequenced, individually applied instructional program. Its principal mode of instruction is the linear program, which consists of the presentation of learning tasks broken down into small sequential stimuli, active response by the learner, and immediate reinforcement of correct responses. The basic assumption upon which this program relies is that language disability is characterized by gaps in sequence of skills, low motivation, and inadequate prior training.

The materials used in this instructional approach are limited to linear programs appropriate to the learner. The language disabled child works through the programs at his own rate, but in a strictly linear fashion with no sequences deleted. Periodic assessment of progress permits some recycling and reassignment.

The learner is placed into appropriate programs at his level based upon diagnostic information. Although progression through the programs is linear and the programs are highly structured, the student does have some alternatives. If he fails to progress he may be allowed to repeat the program or he may be assigned a parallel program.

The materials and methods of this instructional approach are pre-determined and are based on the nature of language disability not on the specific needs of individual learners. Although there is a degree of flexibility and individualization, it must be within the limits of the pre-determined materials and mode of instruction.[2]

Individually Prescribed Program Approach

The Individually Prescribed Program approach (IPP) is a non-linear, unstructured, individualized method of instruction based on the assumption that by pinpointing the nature of the language disability the teacher will have a rational basis for selecting a particular remedial method. This program begins with a determination of each learner's profile through an assessment of his assets and deficits. Individual instructional strategies are devised or selected to ameliorate the child's deficits and to utilize his strengths to attain appropriate educational progress.

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[2] A more complete description of the PI model can be found in the publication "Project CHILD -- The Intervention Models." (See Appendix B)

Materials and methods are selected from a wide variety of alternatives. Resources and methods are in no way limited by this instructional approach but rather are a function of the needs of the individual learner.

Diagnosis within this method is dynamic. Appraisal results are seen as tentative and the student's profile is constantly reviewed and revised according to his daily classroom performance. Instructional strategies are eliminated and new ones are devised as indicated by daily evaluation of student progress.

Schedules may vary widely with different students and the length of time spent on different activities will be part of the individually prescribed strategies.[3]

The three approaches described above can be compared readily by placing them on a continuum extending from linear to non-linear. On such a scale complete linearity is represented by a single instructional system with one point of entry, one sequence of progression and one point of completion. At the opposite pole the completely non-linear approach embraces any instructional system, the only criterion for utilization being the child's continuous growth. Thus the material to be used, method of presentation, point of entry, sequence of progression and point of completion are all functions of the specific nature of the learner's disability. The assumption is that, of the three instructional approaches used in Project CHILD, IPP most closely approximates the non-linear extreme, and APSL most closely resembles the linear pole with PI located at approximately the center of the scale. The following comparison of the respective systems indicate our bases for such a placement on the linear, non-linear continuum.

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[3] A more complete description of the IPP model can be found in the publication "Project CHILD -- The Intervention Models." (See Appendix C)

LINEAR ——— NON-LINEAR

APSL	PI	IPP
I. Teacher's Role		
1. Adheres rigidly to prescribed method of presentation.	1. Selects appropriate programmed instruction, based upon learner's record and recommendation of diagnostician.	1. Selects instructional material and method, based upon learner's record and recommdation of diagnostician.
2. Strictly controls learner's rate of progress through APSL sequence.	2. Allows learner to progress at his own pace until he completes a program or is placed in another sequence.	2. Bases rate of presentation and learner progress upon daily observation and recommendations of diagnostician.
II. Procedures		
1. Initial screening for language disability; periodic evaluation of progress.	1. Initial screening for language disability; assessment for initial placement in programmed material; quarterly assessment for possible change in materials.	1. Initial screening for language disability; constant assessment to initiate and maintain a curriculum for each child, with methods and materials dependent upon educational diagnosis.
2. Single entry point to material for all learners.	2. Multiple entry points, dependent upon initial evaluation.	2. Multiple entry points, dependent upon initial evaluation.
3. Learner proceeds through material as he masters it to the teacher's satisfaction.	3. Learner proceeds through material according to his ability and the design of the program to which he is assigned; provision is made for quarterly evaluation and possible adjustment of materials and/or schedule.	3. Learner proceeds through material at the discretion of teacher and/or diagnostician; provision is made for daily evaluation and possible adjustment of materials and/or schedule.
4. Recycling possible in material already covered.	4. Recycling possible in comparable programmed material.	4. Recycling possible in any material or method selected by teacher or diagnostician.

LINEAR NON-LINEAR

APSL	PI	IPP
III. Materials		
1. APSL Reading and Auditory Discrimination materials only.	1. Basic programmed instruction materials and limited alternative programs.	1. Various instructional materials.
2. The material is a highly structured, sequential analysis of language.	2. All materials structure instruction linearly and require sequential progression.	2. Materials based on individual learner needs, non-sequential, with no emphasis upon any one instructional design or technique.

CHAPTER II

PROCEDURES

Nine schools in each of the Irving and Dallas Independent School Districts were selected for participation in the project. Nine teachers in each school district were selected and randomly assigned to one of the three intervention models. They received pre-service instruction in the operation of the particular intervention model to which they were assigned.

An initial screening of all eligible students in the eighteen schools was conducted to identify the pool of eligible language handicapped children from which the experimental sample was drawn. The screening criteria were those described in Part II of this report. In each school twelve children with language disabilities were selected as the experimental sample and were assigned to the experimental classroom.

Each of the eighteen classrooms was composed of thirteen "normal" students and twelve students identified as having language disabilities. Each classroom was staffed by a teacher and an aide, and the services of an educational diagnostician were available as needed.

A control group of students having language disabilities was established using the same criteria used in selecting the experimental sample. These students received no particular remediation but were given traditional instruction in the regular classroom setting.

Criterion Measures

Pre-tests and post-tests were administered to determine the effects of the instructional programs. These included the Metropolitan Achievement Test and a Semantic Differential Test designed to measure attitudinal changes.

Statistical Analyses

Four analyses were performed. These were performed for Dallas and Irving groups separately on all nine variables from the Metropolitan Achievement Test.

The nine variables were Word Knowledge, Reading, Comprehension, Language, Spelling, Math Concepts, Math Comprehension, Problem Solving, and Total Math. These analyses included those listed below.

A. An analysis was performed comparing each of the experimental groups with its respective control group through an analysis of covariance technique using the pre-test scores as the covariate.

1. Dallas Control--LD scores were compared with APSL-LD, PI-LD, and IPP-LD. (Table 1)
2. Dallas Control--N scores were compared with APSL-N, PI-N, and IPP-N. (Table 2)
3. Irving Control--LD scores were compared with APSL-LD, PI-LD, and IPP-LD. (Table 3)
4. Irving Control--N scores were compared with APSL-N, PI-N, and IPP-N. (Table 4)

B. An analysis was performed comparing each of the LD experimental groups with its respective LD control group through an analysis of covariance technique using the respective pre-test scores and student IQ scores as control variables.

1. Dallas Control--LD scores were compared with APSL-LD, PI-LD, and IPP-LD. (Table 5)
2. Irving Control--LD scores were compared with APSL-LD, PI-LD, and IPP-LD. (Table 6)

C. An analysis was performed comparing all four groups (APSL, PI, IPP, and Control) at one time through an analysis of covariance techniques using the respective pre-test scores as the covariate. The analysis of covariance was followed by a Tukey multiple comparison to identify pair-wise differences between adjusted group means.

1. Dallas APSL-LD, PI-LD, IPP-LD, and Control-LD were compared. (Table 7)
2. Dallas APSL-N, PI-N, IPP-N, and Control-N were compared. (Table 8)

3. Irving APSL-LD, PI-LD, IPP-LD, and Control-LD were compared. (Table 9)
4. Irving APSL-N, PI-N, IPP-N, and Control-N were compared. (Table 10)

D. An analysis was performed comparing all four groups (APSL-LD, PI-LD, IPP-LD, and Control-LD) at one time through an analysis of covariance technique using the respective pre-test scores and I.Q. scores as the covariates. The analysis of covariance was followed by a Tukey multiple comparison to identify pair-wise differences between adjusted group means.

1. Dallas APSL-LD, PI-LD, IPP-LD, and Control-LD were compared. (Table 11)
2. Irving APSL-LD, PI-LD, IPP-LD, and Control-LD were compared. (Table 12)

CHAPTER III

RESULTS AND CONCLUSIONS

Results of Analyses

Covariance Analysis (Covariate: Pre-test)

DALLAS

A. The results of the covariance analysis described above where the Dallas Control LD group was compared through analysis of covariance with the APSL, PI, and IPP-LD groups are presented in Table 1. These results indicated:

1. All three Dallas experimental-LD groups were superior to the Control-LD group.
2. APSL was the best of the three methods followed closely by PI.

B. The results of the covariance analysis described above where the Dallas Control Normal group was compared with the APSL, PI, and IPP Normal groups are presented in Table 2. These results indicated no important differences between the Dallas experimental-N groups and the Control-N group.

IRVING

C. The results of the covariance analysis described above where the Irving Control-LD group was compared to the APSL, PI, and IPP-LD groups are presented in Table 3. These results indicated:

1. There were no important differences between any of the Irving experimental-LD groups and the Control-LD groups.
2. On the Math Concepts subtest the Irving Control-LD group was consistently superior to the experimental-LD groups.

D. The results of the covariance analysis described above why the Irving Control-Normal group is compared to the APSL, PI, and IPP Normal group are presented in Table 4. These results indicated no consistent differences between the Irving experimental-N groups and the Control-N groups.

Covariance Analysis (Multiple Covariates)

DALLAS

E. The results of the covariance analysis described above where Dallas Control LD students are contrasted with APSL, PI, and IPP-LD students are presented in Table 5. These results indicated:

1. The APSL-LD group is superior to the Control group on four of the five verbal subtests and three of the four math subtests.
2. No significant differences between PI-LD and the Control-LD group.
3. The IPP-LD group was superior to the Control-LD group on three of the four math subtests.

IRVING

F. The results of the covariance analysis described above where Irving Control-LD students are contrasted with APSL, PI, and IPP-LD students are presented in Table 6. These results indicated:

1. All significant differences were in favor of the Control-LD group.

Four Group Covariance Analysis (Covariate: Pre-test)

DALLAS

G. The results of the covariance analysis described above where all four LD groups are considered simultaneously (with one covariate) are presented in Table 7. The results indicated:

1. The four Dallas LD groups differed significantly at the .05 level on seven of the nine variables.
2. The multiple comparison results indicated no significant differences between the experimental LD groups in Dallas.
3. The most constant differences are between APSL-LD and Control-LD with APSL-LD the superior of the two.

H. The results of the covariance analyses described above where the Dallas Normals are compared with the APSL, PI, and IPP Normals are presented in Table 8. These results indicated no important differences among the four Dallas Normal groups.

IRVING

I. The results of the covariance analysis described above where the Irving Control LD group is compared to the APSL, PI, and IPP-LD groups are presented in Table 9. These results indicated:

1. Significant differences were found among the four Irving LD groups on six of the nine subtests.
2. The PI-LD group was higher than the APSL-LD group on Word Knowledge, Reading, and Comprehension.
3. On Spelling the APSL-LD group was superior to the PI-LD group.
4. None of the Irving Experimental-LD groups was consistently superior to the other experimental groups on the Central group across all variables.

J. The results of the covariance analysis described above where Control Normals are compared with APSL, PI, and IPP Normals are presented in Table 10. These results indicate no important consistent differences among the four Irving Normal groups.

DALLAS

K. The results of the covariance analysis described above where the Control, APSL, PI, and IPP-LD groups are compared with two covariates are presented in Table 11. These results indicate:

1. Significant differences among the four Dallas LD groups on three of the nine subtests.
2. All the significant differences are on math tests (Math Concepts, Math Comprehension, and Math Total.) APSL-LD is superior to the Control-LD group on all three of these measures while IPP-LD is superior to the Control-LD on Math Concepts and Math Total.
3. No overall superiority of one on the four groups is indicated.

IRVING

L. The results of the covariance analysis described above where the Control, APSL, PI, and IPP-LD groups are compared with two covariants are presented in Table 12. These results indicate:

1. Significant differences among the four Irving LD groups on seven of the nine variables.
2. No consistent pattern of superiority of one of the groups over the others.
3. The Irving Control-LD is superior to all three experimental groups on Math Concepts.

Conclusions - Achievement Data

In the analysis on the LD groups with the pre-test as the covariate, a number of significant differences were found in the metropolitan school district between the Control-LD and the three treatment conditions. Very few differences were found in the suburban school district. In both districts very few differences were found among the Normal subjects.

The most significant effect was found in the Dallas schools with all intervention models being found generally superior to the Control group and with the economical APSL model yielding the greatest gain. This trend was not borne out, however, in the Irving district where the intervention models proved superior to the Control only in selected areas--particularly Language and Word Knowledge and where gains were less significant.

While many variables may have contributed to these differences between the two districts, two were sufficiently general and evident enough to be cited:

(1) In the metropolitan district the students were significantly lower in achievement (approximately one year) at the beginning of the experiment. Thus the special treatments and particularly the very structured APSL model may have yielded greater gains than those experienced by the suburban district and -

(2) There was a stricter adherence to the model in the metropolitan district, and this perhaps produced data that emphasized differences between and among intervention models and controls.

Another finding of this study which seems particularly significant deals with the contribution made by individual assessment. In no instance did the IPP method, which relies heavily on individual appraisal, out-perform the APSL or the PI models which have little or no individual assessment. In fact LD students in the APSL intervention model, which has no individual assessment, made consistently better achievement gains than did those in the IPP model. In view of the expense and staff sophistication required for adequate individual appraisal, it is believed that this finding should be given serious examination by those planning implementation of LD habilitation programs.

TABLE 1

ADJUSTED MEANS AND PROBABILITY VALUES AMONG DALLAS LD AND CONTROL GROUPS (COVARIABLE: PRETEST SCORES)

COMPARISON	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLV.	MATH TOTAL
Cont-LD	55.80	54.41	54.16	59.58	62.07	60.94	57.56	60.96	63.28
Probability	.0025	.0017	.0019	.0004	.3392	.0000	.0003	.0237	.0004
APSL-LD	64.21	63.03	62.11	70.43	65.19	73.05	67.58	67.33	72.26
Cont-LD	52.12	51.41	50.24	57.77	59.01	58.67	53.49	58.59	59.68
Probability	.0133	.1961	.0258	.0018	.8739	.0243	.0008	.5725	.0102
PI-LD	57.92	54.86	55.59	66.26	58.55	64.61	61.87	60.11	65.67
Cont-LD	56.35	56.11	55.11	60.84	61.52	60.08	56.93	60.36	62.12
Probability	.1156	.0790	.0705	.0210	.4311	.0000	.0020	.0143	.0000
IPP-LD	61.33	61.03	60.14	66.46	59.10	70.31	64.31	67.66	71.24

TABLE 2

ADJUSTED MEANS AND PROBABILITY VALUES AMONG DALLAS EXPERIMENTAL AND CONTROL NORMALS (COVARIABLE: PRETEST SCORES)

COMPARISON	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	TOTAL MATH
Cont-N	75.10	74.27	74.05	77.55	75.24	75.75	74.77	73.98	78.55
Probability	.5421	.4827	.4763	.7336	.6610	.2352	.1832	.0807	.0310
APSL-N	73.41	72.55	72.41	78.69	76.10	78.35	77.64	77.67	81.94
Cont-N	71.79	71.14	70.60	76.50	73.01	72.24	71.38	72.90	75.22
Probability	.5946	.4834	.4365	.2348	.1202	.2706	.8516	.8675	.4006
PI-N	73.23	72.84	72.40	79.43	75.94	74.95	71.87	72.43	77.10
Cont-N	75.16	76.96	75.37	80.94	74.56	75.94	74.54	74.76	78.74
Probability	.6186	.1749	.2950	.2985	.3908	.0149	.0794	.0885	.0072
IPP-N	73.96	73.34	73.02	78.23	76.18	82.01	78.51	79.34	84.26

TABLE 3

ADJUSTED MEANS AND PROBABILITY VALUES AMONG IRVING LD AND CONTROL GROUPS (COVARIABLE: PRETEST SCORES)

COMPARISON	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	TOTAL MATH
Cont-LD	67.33	66.92	66.30	68.20	68.34	75.10	68.59	65.62	74.16
Probability	.4587	.0403	.0673	.7804	.1665	.0002	.6270	.2956	.0212
APSL-LD	65.56	60.08	62.01	67.39	70.58	67.81	67.42	62.52	69.53
Cont-LD	67.19	67.16	66.38	68.20	70.12	74.88	68.33	65.83	74.16
Probability	.0455	.4622	.1066	.1488	.0603	.0057	.8764	.0623	.4435
PI-LD	72.02	68.94	69.45	71.91	67.16	69.67	67.99	70.38	72.87
Cont-LD	64.90	64.89	63.79	66.69	68.60	75.04	68.03	65.04	73.47
Probability	.3164	.2014	.9924	.7084	.3924	.0013	.2633	.6234	.1227
IPP-LD	67.38	61.63	63.77	67.66	67.23	68.00	65.28	66.40	70.39

TABLE 4

ADJUSTED MEANS AND PROBABILITY VALUES AMONG IRVING EXPERIMENTAL AND CONTROL NORMALS (COVARIABLE: PRETEST SCORES)

COMPARISON	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	TOTAL MATH
Cont-N	70.00	69.72	69.21	74.15	75.66	81.78	75.90	76.45	81.85
Probability	.6778	.2950	.1470	.3955	.8115	.0620	.2448	.0567	.0713
APSL-N	70.80	72.42	72.02	77.34	76.08	77.45	73.58	71.91	78.75
Cont-N	71.34	70.95	71.38	75.50	77.69	81.57	76.68	77.63	82.71
Probability	.0918	.0150	.0770	.0106	.0221	.0129	.1581	.2762	.0701
PI-N	75.42	76.28	74.82	81.69	74.26	76.07	74.16	75.31	79.72
Cont-N	71.68	72.28	72.04	77.80	77.57	83.03	77.37	77.28	83.83
Probability	.1250	.6077	.4423	.7824	.1842	.0152	.6408	.7054	.0795
IPP-N	74.68	73.50	73.61	78.49	75.57	77.39	76.43	76.49	80.78

TABLE 5

ADJUSTED MEANS AND PROBABILITY VALUES AMONG DALLAS LD AND CONTROL GROUPS (COVARIABLES: PRETEST AND I.Q.)

COMPARISON	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	TOTAL MATH
Cont-LD	57.27	54.74	55.14	61.46	61.91	63.30	59.61	61.34	64.83
Probability	.0390	.0099	.0204	.0390	.4267	.0098	.0326	.0890	.0304
APSL-LD	63.21	63.01	61.56	67.99	65.08	70.18	65.54	66.87	70.42
Cont-LD	53.80	53.22	52.29	60.09	58.68	60.09	55.89	59.16	61.09
Probability	.2514	.8960	.4689	.1326	.9786	.2343	.1081	.8584	.1104
PI-LD	56.76	53.61	54.18	64.66	58.77	63.63	60.21	59.71	64.70
Cont-LD	58.42	57.67	57.19	62.60	61.97	62.44	58.29	60.94	63.51
Probability	.6012	.3933	.5274	.2696	.4000	.0143	.0432	.0678	.0024
IPP-LD	60.21	60.25	59.01	65.58	58.91	68.36	63.43	67.24	70.18

TABLE 6

ADJUSTED MEANS AND PROBABILITY VALUES AMONG

IRVING LD AND CONTROL GROUPS (COVARIABLES: PRETEST AND I.Q.)

OMPARISON	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	TOTAL MATH
ont-LD	69.34	67.25	67.01	66.98	68.13	75.14	68.59	66.81	74.61
Probability	.0979	.0456	.0591	.7582	.1456	.0004	.7225	.1528	.0228
PSL-LD	65.41	59.88	62.15	67.92	70.50	67.43	67.59	61.87	69.27
ont-LD	68.82	67.33	67.03	67.94	69.62	74.77	68.75	66.67	74.51
Probability	.1300	.5441	.1796	.1557	.1104	.0092	.6819	.2133	.3440
I-LD	72.20	68.90	69.66	71.57	67.46	69.38	67.75	70.03	72.70
ont-LD	68.63	67.00	66.65	66.42	68.36	75.11	69.14	66.55	74.35
Probability	.1531	.0033	.0153	.7652	.4221	.0015	.0770	.6942	.0343
PP-LD	65.45	59.62	61.74	67.23	67.18	67.55	64.39	65.38	69.67

TABLE 7

ADJUSTED MEANS, PROBABILITY AND DIFFERENCES AMONG

DALLAS LD GROUPS (COVARIABLE: PRETEST)

GROUP	Group No.	KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	MATH TOTAL
APSL	1	64.23	62.11	61.94	67.94	65.51	70.79	67.69	67.05	71.33
PI	2	61.38	58.91	59.50	68.81	61.82	66.83	64.82	62.39	68.72
IPP	3	61.72	61.06	60.28	67.39	59.93	70.43	64.09	68.32	71.35
Cont	4	55.60	55.48	54.12	60.33	62.25	61.01	56.38	61.06	62.90
Probability	--	.0121	.0758	.0115	.0076	.0923	.0004	.0000	.0217	.0005
Tuhey Diff.										
x = .05	--	1-4*	1-4	1-4 3-4	1-4 2-4 3-4		1-4 3-4	1-4 2-4	3-4	1-4 2-4 3-4

TABLE 8

ADJUSTED MEANS, PROBABILITY AND DIFFERENCES AMONG DALLAS EXPERIMENTAL AND CONTROL NORMALS (COVARIABLE: PRETEST)

GROUP	GROUP NO.	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	TOTAL MATH
APSL-N	1	72.45	72.40	71.95	79.31	75.21	76.84	75.68	76.95	80.11
PI-N	2	75.31	75.79	75.14	80.79	77.14	76.58	72.82	72.74	78.31
IPP-N	3	73.18	71.46	71.61	77.28	75.88	80.33	76.88	78.38	82.67
Cont-N	4	74.02	74.05	73.41	78.23	74.30	74.26	72.97	73.67	76.91
Probability	--	.6358	.2035	.2606	.5631	.3381	.0740	.1369	.0550	.0226
Tukey DIFF.										
X = .05	--						3-4			3-4

TABLE 9

ADJUSTED MEANS, PROBABILITY VALUES AND DIFFERENCES AMONG IRVING LD AND CONTROL GROUPS (COVARIABLE: PRETEST)

GROUP	GROUP NO.	WORD KNOWLEDGE	READING	COMPREHENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	TOTAL MATH
APSL-LD	1	65.62	60.54	62.17	67.28	71.64	67.63	67.17	62.41	69.29
PI-LD	2	72.06	69.11	69.38	72.04	67.12	69.53	67.96	69.93	72.54
IPP-LD	3	69.07	63.59	66.17	69.03	68.11	68.07	65.55	67.33	71.19
Cont-LD	4	68.07	66.85	66.51	67.20	68.90	74.37	68.29	65.81	73.86
Probability	--	.0159	.0206	.0073	.1372	.0040	.0021	.6729	.0247	.0958
Tukey DIFF.										
X = .05	--	1-2	1-2	1-2		1-2 1-3	1-4 3-4		1-2	

TABLE 10

ADJUSTED MEANS, PROBABILITY VALUES AND DIFFERENCES AMONG IRVING EXPERIMENTAL AND CONTROL NORMALS (COVARIABLE: PRETEST)

GROUP	GROUP NO.	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	MATH TOTAL
APSL-N	1	72.34	74.85	74.45	77.26	78.39	78.12	75.86	73.71	80.49
PI-N	2	75.70	77.01	75.22	82.77	74.45	76.88	74.89	76.05	80.43
IPP-N	3	75.10	73.03	73.48	81.36	75.43	76.85	76.34	77.39	80.82
Cont-N	4	71.52	72.03	71.62	74.24	77.96	82.42	78.05	78.32	83.66
Probability	--	.1631	.1363	.3202	.0308	.0303	.0366	.4430	.1728	.1812
TUKEY										
DIFF.										
X =.05	--				2-4	1-2	2-4 3-4			

TABLE 11

ADJUSTED MEANS, PROBABILITY AND DIFFERENCES AMONG

DALLAS LD GROUPS (COVARIABLES: PRETEST AND I.Q.)

GROUP	GROUP NO.	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	MATH TOTAL	I.Q.
APSL	1	63.28	61.32	60.89	67.14	65.81	70.22	66.80	66.63	70.83	105
PI	2	60.82	58.36	58.81	67.98	61.89	66.48	63.89	62.25	68.30	100
IPP	3	61.28	60.76	59.85	66.83	60.11	69.88	63.77	68.02	70.99	103
CONTROL	4	58.04	57.54	56.85	63.13	61.58	62.88	59.12	62.13	64.50	89
Probability	-	.326	.438	.436	.344.	.080	.024	.022	.068	.022	--
TUKEY DIFF. L = .05	-						1-4 3-4	1-4		1-4 3-4	

TABLE 12

ADJUSTED MEANS, PROBABILITY AND DIFFERENCES AMONG IRVING LD GROUPS (COVARIABLES: PRETEST AND I.Q.)

GROUP	GROUP NO.	WORD KNOWLEDGE	READING	COMPRE-HENSION	LANGUAGE	SPELLING	MATH CONCEPTS	MATH COMPREHENSION	PROBLEM SOLVING	MATH TOTAL	I.Q.
APSL	1	65.38	60.23	62.02	67.26	71.59	67.45	66.96	61.99	69.06	100
PI	2	71.97	69.13	69.42	72.03	67.13	69.39	67.81	69.67	72.40	99
IPP	3	68.29	62.69	65.40	68.98	68.06	67.88	65.31	66.87	70.91	99
CONTROL	4	69.28	68.15	67.47	67.29	69.01	74.94	68.96	67.06	74.57	92
PROBABILITY	--	.010	.006	.003	.150	.005	.001	.53	.018	.043	--
TUKEY DIFF.		1-2	1-2 1-4	1-2		1-2 1-3	1-4 2-4 3-4		1-2	1-4	--
L = .05											

Statistical Analysis - Attitude Data

Analysis of pre-test and post-test data obtained from administration of the Semantic Differential is presented in Tables 13 through 20.

Adjusted means, probability values, and Tukey Difference results for the Semantic Differential evaluative scales were computed for both LD's and Normals keeping Irving Independent School District and Dallas Independent School District students separate.

Tables 13 and 15 indicate that there were no statistically significant attitudinal effects related to the three intervention models when only the LD children were considered.

Tables 14 and 16 reveal significant attitudinal effects in the concept of feelings toward self among Normal students in the Dallas APSL model. APSL students' feelings about themselves in the Dallas classrooms were significantly more positive than those reflected by either the PI students or the Control students. This finding was not born out, however, in analysis of the Irving data as reported in Table 16.

Adjusted means, probability values, and Tukey Difference results were also computed for the total scale Semantic Differential. Again computations kept Dallas and Irving students and LD and Normal students separate.

Only one statistically significant finding was revealed in this analysis of LD students attitudinal changes. This finding indicated that students in the LD Control Group in the Irving Independent School District held significantly more positive feelings toward school than those LD's in the IPP intervention model. (Table 19)

An analysis on adjusted means, probability values, and Tukey Difference results for the Normal students in the Project CHILD classrooms in Irving revealed no significant differences although there did seem to be a trend toward more positive feelings in the PI model. (Table 20)

Conclusions - Attitude Data

It would appear that the most significant attitudinal effect of the intervention models is the positive effect found in the APSL classrooms in Dallas. There was some question about the desirability of such a highly structured program, and some observors felt this degree of structure might have a negative effect on both LD's and Normals in the classroom, but particularly was this feared for the Normals. The data would suggest that these fears were ungrounded.

It can be concluded from the research evidence that any of the three intervention models could be implemented in a regular classroom setting without producing any negative attitudinal changes in either language handicapped or normal students.

TABLE 13

ADJUSTED MEANS, PROBABILITY VALUES AND TUKEY DIFFERENCE RESULTS FOR SD EVALUATIVE SCALES LD (DALLAS ISD)

	CONCEPTS		
GROUPS	MYSELF	SCHOOL	READING
APSL	12.37	10.76	9.94
PI	14.16	10.30	10.39
IPP	12.98	10.26	10.35
CONTROL	13.43	10.16	10.60
PROBABILITY	.391	.933	.912
TUKEY DIFFERENCE $\alpha = .05$	--	--	--

TABLE 14

ADJUSTED MEANS, PROBABILITY VALUES AND TUKEY DIFFERENCE RESULTS FOR SD EVALUATIVE SCALES NORMAL (DALLAS ISD)

	CONCEPTS		
GROUPS	MYSELF	SCHOOL	READING
APSL	14.00	11.31	10.39
PI	12.08	10.58	9.82
IPP	12.58	10.49	9.60
CONTROL	11.51	9.61	9.85
PROBABILITY	.005	.2547	.668
TUKEY DIFFERENCE α = .05	1-2 1-4	--	--

TABLE 15

ADJUSTED MEANS, PROBABILITY VALUES AND TUKEY DIFFERENCE RESULTS FOR SD EVALUATIVE SCALES LD (IRVING ISD)

	CONCEPTS		
GROUPS	MYSELF	SCHOOL	READING
APSL	14.08	12.18	10.63
PI	13.64	12.09	10.56
IPP	14.09	10.99	10.97
CONTROL	13.88	12.98	11.74
PROBABILITY	.953	.232	.490
TUKEY DIFFERENCE $\alpha = .05$	--	--	--

TABLE 16

ADJUSTED MEANS, PROBABILITY VALUES AND TUKEY DIFFERENCE RESULTS FOR SD EVALUATIVE SCALES NORMAL (IRVING ISD)

GROUPS	CONCEPTS MYSELF	 SCHOOL	 READING
APSL	12.96	10.97	10.72
PI	13.53	12.10	11.56
IPP	12.84	10.33	10.90
CONTROL	13.52	11.31	11.17
PROBABILITY	.779	.370	.755
TUKEY DIFFERENCE $\alpha = .05$	--	--	--

TABLE 17

ADJUSTED MEANS, PROBABILITY VALUES AND TUKEY DIFFERENCE RESULTS FOR SD TOTAL SCALES LD (DALLAS ISD)

	CONCEPTS		
GROUPS	MYSELF	SCHOOL	READING
APSL	19.28	18.43	18.11
PI	20.26	19.88	18.27
IPP	19.18	18.57	17.71
CONTROL	20.61	17.99	19.02
PROBABILITY	.736	.756	.875
TUKEY DIFFERENCE α = .05	-----	-----	-----

TABLE 18

ADJUSTED MEANS, PROBABILITY VALUES AND TUKEY DIFFERENCE RESULTS FOR SD TOTAL SCALES NORMAL (DALLAS ISD)

	CONCEPTS		
GROUPS	MYSELF	SCHOOL	READING
APSL	20.93	21.27	17.93
PI	17.45	18.73	16.82
IPP	18.59	18.92	17.56
CONTROL	17.43	16.88	17.20
PROBABILITY	.005	.070	.799
TUKEY DIFFERENCE	1 - 2	1 - 4	-----
α= .05	1 - 4		

TABLE 19

ADJUSTED MEANS, PROBABILITY VALUES AND TUKEY DIFFERENCE RESULTS FOR SD TOTAL SCALES LD (IRVING ISD)

	CONCEPTS		
GROUPS	MYSELF	SCHOOL	READING
APSL	21.15	21.44	18.70
PI	20.24	22.14	18.62
IPP	21.39	16.67	19.61
CONTROL	20.03	23.01	19.31
PROBABILITY	.744	.016	.911
TUKEY DIFFERENCE	——	3 - 4	-----

α = .05

TABLE 20

ADJUSTED MEANS, PROBABILITY VALUES AND TUKEY DIFFERENCE RESULTS FOR SD TOTAL SCALES NORMAL (IRVING ISD)

	CONCEPTS		
GROUPS	MYSELF	SCHOOL	READING
APSL	19.22	20.52	19.94
PI	21.30	22.73	20.29
IPP	20.38	19.07	18.87
CONTROL	19.70	20.36	19.77
PROBABILITY	.431	.162	.824
TUKEY DIFFERENCE α = .05	——	——	——

APPENDIX A

ALPHABETIC, PHONETIC, STRUCTURAL LINGUISTIC APPROACH

DESCRIPTION OF THE INSTRUCTIONAL PROGRAMS

ALPHABETIC, PHONETIC, STRUCTURAL LINGUISTIC APPROACH

The Alphabetic, Phonetic, Structural Linguistic Approach to Literacy (APSL) program is a highly structured, uniformly applied, linearly sequenced instructional program. Its uniformity, structure, and linearity are based on the assumption that language disability is a unidimensional problem and that a unidimensional intervention is therefore appropriate.

APSL materials and methodology present language as a series of consistent patterns of visual, auditory, and oral communications stimuli; the individual stimulus and correct response can be committed to memory and only gradually is the learner required to master the system of language so that he can apply the generalization, or rule, to an unknown stimulus and determine an appropriate response.

Each stimulus is presented on a multi-sensory basis, utilizing the child's ability to learn by seeing, hearing, and speaking. Tactile learning is also given much significance in that rough surfaced materials are used continuously for the child to reproduce written symbols, placing his finger on the abrasive surface to maximize the sensation of touch.

This program is characterized by much repetition and drill, largely based on an assumption that the language disabled child relies heavily on memory for all learning. In the APSL approach this is typified in constant drill and practice, both written and oral, on such items as word families, I.E., sin, pin, tin. Thus the child writes, reads, hears, and says the letters, words, patterns and rules repeatedly.

The starting point for each child is the same in this instructional program. Once he has been identified as having a language disability, he begins with basic letter recognition, alphabetic sequence, and sound-symbol relationships. Each student proceeds directly through the APSL materials with no variation. Permitted individualization is limited to one dimension-rate of progress.

An integral feature of the APSL program is individual instruction on the basic language materials. This is believed to be essential for pacing, for immediate reinforcement or correction, and for maintaining attention to the learning task.

TEACHER: INTERVENTION METHOD

heres rigidly to prescribed method of presentation.

TEACHER ROLE

A. Materials - The teacher has no discretionary power in the selection of materials to be used in the APSL intervention model. These materials are limited to (1) APSL materials developed and published by the Reading Disability Center and Clinic under the direction of Dr. Charles L. Shedd and (2) Reader's Digest Skill Pads, Reader's Digest Master Audio Unit Tapes (Spell Tapes EPC). APSL materials include:

1. Introduction (Student's Manual and Teacher's Manual)
2. Book I (Student's Manual and Teacher's Manual)
3. Book II (Student's Manual and Teacher's Manual)
4. Book III
5. Glossary
6. APSL Auditory Discrimination
7. APSL Introduction

B. Method

1. Basic Reading Instruction

Basic Reading Instruction in the APSL intervention model relies heavily upon individual instruction so that each child may proceed at his own pace through each sequential segment of the language.

"This material requires the student to learn the name of a letter and the sound of the letter, for this reason we refer to the operation as alphabetic-phonetic. Letters are introduced; the student is asked to identify the letter by name, to trace the letter on a model with a finger of the preferred hand, to reproduce the letter on sandpaper without the model, then to write the letter with a pencil. A sound is then given to the letter, and the student is asked to write the letter while making the sound. As soon as the student learns two letters, such as a and t, they are added together to form a larger language unit, a phonogram or word family. Additional consonants can then be learned so that words are formed. As a consequence of this procedure, the operation is termed structural-linguistic. By way of this procedure, the student is able to read at the first session, certainly positive feedback for the non-reader. As he progresses and encounters difficulty, he has all of the necessary skills for decoding. From this elemental beginning, there is a continual progression to more complex linguistic units.

The consonants selected for initial introduction are high incidence ones. Only short vowels are introduced in the beginning. However, even in the early stages of instruction it is recognized that some words which are exceptions to the presentation will be required. These words are reduced to a minimum and only those which necessity demands are taught as sight words. These are presented as total sound units, and the process described for single letters is employed.

After all of the short vowel phonograms are introduced and related to all beginning consonant sounds, all initial consonant blends are related to already recognizable phonograms. The same is true for digraphs. Then there is an expansion by means of the vowel shift from short to long by the addition of a terminal e. The material continues in expansion and development until the college level is attained."[1]

2. Auditory Discrimination Instruction

The APSL intervention model requires auditory discrimination instruction which follows a teacher-directed group drill model. In this format the students, using common materials at a single speed, respond in unison to the commands, questions, and directions of the teacher. The common materials deal exclusively with the sound of the English language, the written symbols which represent those sounds, and the many ways of combining these sounds into meaningful units. Materials used in this drill are found in APSL Auditory Discrimination Book and are limited to this source.

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[1] APSL Instructor's Manual, Reading Disability Center and Clinic, Dr. Charles L. Shedd, 1968.

TEACHER: INTERVENTION METHOD

3. Contextual Reading

The APSL intervention model requires contextual reading as an opportunity for students to apply those decoding skills learned in the APSL materials. This contextual reading is limited to the Reader's Digest Skill Pads and Reader's Digest Master Audio Unit Tapes (Spell Tapes EPC).

The teacher conducts the contextual reading sessions requiring students to read both silently and orally and to answer questions both orally and in writing over the material read.

C. Management of Volunteers

The APSL intervention model assumes that individual instruction is essential for pacing, for immediate reinforcement or correction, for continuous evaluation and for maintaining attention to the task. Practical classroom application of this assumption mandates the use of lay volunteer workers as tutors. The teacher's role in relation to these volunteers is that of supervisor and coordinator.

EACHER-STUDENT RELATIONSHIP:

Teacher will maintain a formal structured directive relationship by making certain each learner is focused and involved in the academics.

The teacher and/or volunteer will maintain a formal, structured, directive relationship by making certain each learner is focused and involved in the academics. The assumptions are that (1) the teacher knows the proper way to remediate the student's language disability, (2) that proper way is found in the APSL materials and (3) any deviation from attention to those materials simply prolongs the condition of language disability. Thus, no time is spent in attempting to interest the student in the content of the materials or to motivate him to enjoy reading; as Dr. Shedd himself has said in his Introduction, Teacher's Manual:

> "Much has been said and written about interesting and motivating the student with particular kinds of reading materials. Experiments have shown that for students who are not achieving in language, the "interest" and "motivation" derive from the satisfaction of achieving a task. If we were to consider a slogan, it would surely be "Nothing succeeds like success."[1]

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[1] APSL Introduction Teacher's Manual, Reading Disability Center and Clinic, Dr. Charles L. Shedd, 1967.

TEACHER-STUDENT RELATIONSHIP:

Continuous control over learner's rate of progress through APSL sequence.	The teacher and/or volunteer tutor exercises continuous control over the learner's rate of progress through the APSL sequence in that even the most minute student response to the materials is the result of a teacher and/or volunteer tutor question or command. At no time is the student expected or allowed to proceed to the next item without teacher direction. Thus, after each question and response the teacher and/or volunteer tutor determines whether the student will proceed to the next item, correct that item or move back to a preceding item. Thus, the teacher and/or volunteer tutor asks the student to read the sentence,"Shan has much kith and kin." (Introduction, Teacher's Manual, p.115). If the student reads the sentence correctly, he may be asked to read the next sentence, "Is the ship a sham?" or he may be asked to explain the meaning of the first sentence. If the student does not read the first sentence correctly, he will be required to correct each mistake by pronouncing and writing the words on rough surface masonite board three times.
Emphasized verbal and non-verbal praise from the teacher.	The APSL intervention model emphasized verbal and non-verbal praise from the teacher. Immediate positive reinforcement is provided by the instructor each time the child responds accurately to a stimulus, completes a task satisfactorily or evidences other desired behaviors. The use of verbal and non-verbal praise is especially emphasized. Non-verbal cues in use include physical contact, facial expressions, vocal inflections and gestures.

EDUCATIONAL DIAGNOSTICIAN:

Available upon teacher's request for consultation.	The role of the educational diagnostician in the APSL intervention model is limited to helping the teacher interpret the student's progress through the prescribed material. For example: when a child is having obvious difficulty in progressing through the APSL materials, the educational diagnostician will be available to examine the student's profile and advise the teacher regarding possible error patterns and recommend replacement of the student within the materials.

PROGRAM DEVELOPMENT:

Learner will enter material at the beginning; Level 1.	Educational differences in mental ability, achievement, severity of handicap, or nature of handicap, are not considerations in initial placement of the students in the APSL materials. For example: a student with an intelligence quotient of 140 will be placed in the prescribed materials in exactly the same place as will a child with

an intelligence score of 90, provided each has been identified as having a language disability.

Every child is required to start at the same point in the APSL materials, with basic letter recognition, alphabetic sequence and sound-symbol relationships. In this way the child is responsible for knowing only what he has received through APSL training and not for the materials he worked with during previous school experiences. This procedure insures success for each child, thereby providing a firm basis for language learning and creating a climate conducive to his development of a positive self-concept. Obviously many progress very rapidly through such elementary material; the individualized nature of the instruction allows such children to progress at their own pace with no interference from and minimal ostracism of those children who progress more slowly.

A specific example illustrating both the concept of common placement and the rigid structure of the APSL intervention model is found in the "Directions to the Teacher" for the first lesson for every Child:

"1. This is the letter a

(Stress the difference between the lower case a and the capital A. Emphasize the fact that the typographical a used in print is different from the handwritten cursive a. Though there may be variations in the form of typographical letters, their forms are basically the same. An advantage of cursive writing over manuscript writing or any type of print is that there are standards for cursive writing that allow for fewer variations in the forms of the letters than we find in print. Another advantage is that the ultimate aim is cursive writing rather than manuscript).

2. Name the letter that comes after a in the alphabet.

3. When a stands alone and is used as a word in a sentence, it is pronounced as a vague, blurred, unaccented "uh" sound: I have a book.

4. When a is followed by a consonant such as t, the vowel is a short vowel, as in the word at.

   SAY: at at at

5. Make the sound a.

   (The short ă, as other vowel sounds, is made with an open mouth. The short a sound, as in the word at is made with the tongue in a low front position in the mouth. Be sure that the student overemphasizes the sound of letters to insure that the sound is firmly established)

6. Think of other words that have the same sound as the a in at.

   (Such words as ad, add, as. Adam, hat, cat, or other words with a definite short a sound may be used as examples.)

7. When the consonant t is blended with the vowel a, a word is made.

   SAY: at at at

8. Look carefully at the word at in your manual. Use the word at in a sentence.

   (Be certain that the meaning for at is clear. If the student cannot use at correctly in a sentence, furnish an example, as:
   I will see you at school.
   Classes start at eight o'clock.)

9. Say the word at slowly.
   How many sounds do you hear? (2)
   Spell at aloud from memory.

10. Read the words in your manual, starting at the arrow. Follow the arrows across the page in a left-to-right direction.

    ——→ ——→ ——→

    at a at a at a at at

'ROGRAM DEVELOPMENT: (Cont'd)

(If the student makes a mistake in pronunciation or produces sloppy sounds, have him correct his mistake immediately, writing the word on sandpaper).

11. This is the handwritten cursive a.

    (Point out the letter in the manual. Explain to the student this is the form of the letter we use in writing while the typographical forms are the ones that we see in reading. Stress the difference between the small a and the capital A.)

12. Trace with the finger the letter a in your manual.

13. Write the letter a with the finger on sandpaper or a rough surface.

    (Observe carefully to see that the letter is made correctly. Point out that the letter begins with the dot. The student must follow the direction of the arrows, finishing the letter with the release stroke is particularly important, as this will be used later to connect letters. The introductory stroke differentiates between the small a and capital A.)

14. With your pencil write the letter a several times.

    (Have the student practice writing this letter until he masters the correct form. When he has mastered the form of the letter, have him name the letter and make the sound of the letter as he writes it.)"[1]

The group is organized in terms of the total group of language handicapped students. All students are engaged in the same activities at the same time. There are only three specified activities in the APSL intervention model. These are basic reading instruction, auditory discrimination instruction, and contextual reading instruction. In the first of these, basic reading instructio students although engaged in the same activity, may be proceding at varying rates. This is made possible through the use of a volunteer tutor provided for each student. In the other two learning activities, students are restricted not only to the same materials but also to the same rate of progress.

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[1] APSL Introduction, Teacher's Manual, Reading Disability Center and Clinic, Dr. Charles L. Shedd and Faustine Blankenship, 1967.

ROGRAM DEVELOPMENT (cont'd)

In both auditory discrimination instruction and contextual reading instruction the teacher proceeds through the prescribed materials with an entire group.

Learner will be provided group auditory discrimination (a minimum of 30 minutes a day).

The learner will be provided group instruction in auditory discrimination for fifty minutes daily. This instruction is conducted solely on an auditory basis; the student never has any written or pictorial material at his disposal. All directions are given orally by the teacher, all learning exercises are dictated by the teacher to the student and the teacher orally provides correct answers for students to check the accuracy of their responses. Student responses are of three types. These are : 1) repeating precisely the sound(s) heard, 2) ansering "yes" or "no" regarding whether a particular sound is heard, and 3) writing the correct symbol for the sound(s) heard. This follows the belief that hearing sounds accurately is important to producing sounds orally or in writing and that the production of sounds accurately is important to overall language development, especially reading.

The specific exercises contained in this material emphasize accurate perception of initial and final consonant sounds and medial vowel sounds, the consistent spelling patterns used in the English language to represent certain sounds, and the accurate oral and written reproduction of these sounds and their corresponding symbols. Thus, a typical class would include the teacher saying to the students, "Answer yes if you hear the word family at in each of the following words and no if you do not hear the word family at." The teacher would then say in rapid succession such words as rat, bag, cat, sag, mat, nab, pat, tab. After each word the students are expected to respond yes or no in unison. Another frequent exercise requires the teacher to read words in sets of three, requiring the student to write the word in each set which does not belong to the same word family as the other two. Thus, pat, nab, cat
rag, sag, rat
nab, jab, bat

Tutoring may be done on a 2 to 1 ratio, at the teacher's discretion. (a minimum of 30 minutes per day).

In order to give each student individual instruction in APSL basic reading materials, volunteer tutors are utilized. These volunteers were recruited from parent-teacher associations, other parent groups, church organizations, civic groups, and from older student groups. Each volunteer receives approximately two and one-half hours of instruction in the proper method for implementing the APSL basic reading materials. The volunteers are assigned specific days and times to work and are closely supervised by the teacher.

'ROGRAM DEVELOPMENT (cont'd)

The rigid, step-by-step organization of the APSL basic reading materials preclude variation on the part of the instructor and consequently avoid many of the problems commonly associated with the use of volunteer instructor:

An example of the way in which the volunteer tutor works is given below:

The volunteer enters the classroom and selects a student folder. By briefly reviewing data contained in the folder he can ascertain the exact page on which the previous day's tutoring concluded and any particular problems or recommendations noted by the previous day's volunteer tutor.

Briefly reviewing this data the volunteer determines which book of the APSL materials to select and upon which page the lesson should begin. He then takes the student to the assigned place for tutoring, sits down beside him, and after a brief review proceeds from the point of the previous day's conclusion.

Following a minimum of 30 minutes of individual instruction in the APSL basic reading materials the volunteer concludes with a brief review of the day's lesson and records the students progress and any special problems or recommendations in his folder.

The exact sequence of presentation in the APSL basic reading materials is given below and the instructional format is that given on page 6 of this document.

The alphabet

- Letter names
- Letter forms
- Letter sounds (only the basic sound for each letter is introduced first. Other sounds for letters are introduced later.)
- Consonants
    - Voiced
    - Unvoiced
- Short vowels
- Consonants and vowels in word families
- Consonants plus word families to form one-syllable C-V-C words
- Sight Words
- Essential Words
- Digraphs
- Frequent reviews and reinforced learning
- Alphabetizing
- Consonant Blends
- Short Vowel Word Families
- Word Families with Double Consonants
- Other Common Consonant Sounds

OGRAM DEVELOPMENT (continued)

- The Magic e
- Long Vowel Word Families
- Long Vowel Combinations
- Other Vowel sounds
- Vowels with R
    - Word families with R
    - Other sounds with R
- The "er" sound
- Double oo sounds
- Diphthongs
- Silent Letters
- Double Consonants
- Irregular Sounds
- Exceptions
- Irregular Consonant Sounds
- Syllables and Stress
- Closed Syllables
- Double Consonants and Endings
- Words with ET endings
- Words with two consonants
- Open Syllables
- Words with be, de, and re
- Mixed Syllables
- Special Vowel Combinations, Dipthongs, and Consonant Blends
- Schwa Syllables
- Vowels with L
- The LE ending
- Vowels with R
- Two-syllable words with the "E R" sound
- Shift of Accent
- Words with T or D and endings
- Separate Vowel Sounds
- Three-syllable words accented on the first syllable
- Three-syllable words accented on the second syllable
- Supplemental material
- Confusing Words
- Essential information
- Homonyms
- Homographs
- Contractions
- Compound Words
    - Hyphenated Compound Nouns
    - Hyphenated Adjectives
    - Compounds as Separate Words
- More Confusing Words
- Affixes
- Plurals of Nouns
    - S with the z sound
    - The es ending
    - Change y to i before es
    - Nouns with y and s
    - Nouns with f and s
    - Nouns with o and Plural Endings

PROGRAM DEVELOPMENT (cont'd)

- The possessive Case of Nouns
  - Nouns with s endings
  - Plural Possessive Nouns
- Verb Endings
  - The Doubling Rule
  - Verbs with Consonants and Y
  - Verbs with Vowels and Y
- Adjectives and Adverbs
  - Comparison of Adjectives
  - Adverbs
  - Comparison of Adverbs
  - Adverb Synonyms
- Suffixes (Nouns)
- Other Noun Suffixes
- Adjective Suffixes
- Other Adverb Suffixes
- Prefixes
- Negative Prefixes
- More Common Prefixes
- Prefixes of Size and Number
- Other Common Prefixes
- Prefixes of Time or Place
- Anglo-Saxon Prefixes
- Root Words
- Foreign Influences on English
- Word Endings
- Classification of Words
- Patterns of the English Language
  - Phrases
  - Trite Words and Phrases
  - Figurative Language
- Sentences
- Paragraphs
- The Body of the English Language
  - Kinds of Language Expression
  - Literature
    - Fiction
    - Nonfiction
  - Nuances and/or Refinement of English

(a minimum of 10 minutes per day- oral reading, Reader's Digest)

The APSL intervention model requires contextual reading as an opportunity for the students to apply those skills acquired in the basic reading instruction and auditory discrimination drill.

The particular materials utilized in this phase of the APSL intervention model are the Readers Digest Skill Builder Series. This series was selected from various alternatives as a means of avoiding contamination (this series is not used in the other two intervention models) and providing materials at appropriate levels of reading difficulty.

PROGRAM DEVELOPMENT (cont'd)

Use of these materials has been described previously. Page 4- Contextual Reading) Time allotted for this phase of APSL instruction is twenty minutes daily.

Daily schedule will be held constant.

No variation in the time scheduled for basic reading instruction, auditory discrimination drill, and contextual reading is permitted in the APSL intervention model. Each student is to receive exactly the same amount of time in each instructional phase as every other student.

Daily limited review is provided in material previously covered.

The APSL materials and methodology present language as a series of consistent patterns of visual, auditory, and oral communications stimuli. These individual stimuli and appropriate responses can be committed to memory, and only gradually does this approach require the learner to master the system of language so that he can apply the generalization, or rule, to an unkown stimulus and determine an appropriate response.

The assumption that the language disabled child relies heavily upon memory for all learning mandates provision for much repetition and drill. Both basic reading instruction and auditory discrimination instruction provide for initial presentation, check for mastery, and frequent review to assure that the student has acquired accurate and automatic response patterns.

The volunteer tutor as part of his daily routine reviews the day's lesson with the student and does not permit the student to move into new material until his responses are automatic.

In addition the materials themselves provide for daily review. For example: the introduction book begins with a study of the letter "A on page one; it continues with the letter :T" on page five. When the letter "T" is introduced the letter "A" is combined with it and a review of the letter "A" is provided. Next the letter "P" is introduced on page nine; the letters "A" and "T" are combined with the letter "P" to form the words "PAT" and "TAP" thus providing a review of the letter "A" and the letter "T". Consequently, as each new letter or letters are presented those letters previously studied are combined with them.

Learner proceeds through material as he masters it to the teacher's satisfaction.

In the APSL intervention model the teacher, aide, or volunteer tutor monitors every student response. Consequently, there is immediate data available to enable the teacher to make instructional decisions. These instructional decisions are made on an item-by-item basis with the teacher, volunteer tutor, or aide judging the adequacy of student performance.

PROGRAM DEVELOPMENT (continued)

These item-by-item judgements constitute the basis for daily decisions regarding student progress. Thus the volunteer tutor is asked to put in writing any special problems that the student may have encountered during that day's work.

The auditory discrimination instructor is also required to chart the daily progress of each student, thereby indicating each student's mastery of material presented.

MATERIALS

APSL, visual, oral, reading and auditory discrimination materials

The APSL intervention model uses the following materials in basic reading instruction:*

1. Introduction (Student's Manual and Teacher's Manual).
2. Book I (Student's Manual and Teacher's Manual)
3. Book II (Student's Manual and Teacher's Manual)
4. Book III
5. Glossary

In APSL Introduction students are taught all of the alphabetic and phonetic information of the English language. (1) The name of each letter (2) Proper formation in writing each letter (3) The sound of each letter (4) Voiced-unvoiced information about each sound (5) Differentiation of vowel and consonant (6) Visual-discrimination of the printed and cursive lower case and capital letter (7) The sequence of the letters in the alphabet (8) How to sound letters in words (9) How to spell simple words (10) Auditory memory by sentence dictation (11) Directionality of the language (12) How to break down simple words with the sounds and word families being taught.

The material in the APSL Introduction teaches the pattern and structure of words to the student. For example:

"Here is the beginning sound (which he has learned as detailed above). a
Here is the unvoiced consonant. t
Put them together - at
Now we have built a word family. This is a unit of language on which we can build many other words by adding beginning consonant sounds -
b at
c at
d at This is not a real word. We will not use it.
f at
h at

---

*One copy of each of the books listed accompany this document

MATERIALS (continued)

m at
n at
p at
r at
s at
v at

Beginning sounds + word families make words."[1]

The student is carefully taught each sound of the language and each word family. He learns to read, write and spell hundreds of words to which this pattern can be applied. These words do not have to be memorized. Irregular words (introduced much later) have to be memorized, but all patterned words are taught first in APSL.

In the Introductory Book all of the consonants and short vowel letters and sounds are taught to the child. He is shown how to put these together to make words built on word families. He is taught to decode our language.

In Book I each consonant blend of the language is taught. These are bl, cl, fl, gl, pl, sl, spl, br, cr, dr, fr, gr, pr, tr, scr, shr, spr, str, sc, sk, sm, sn, sp, st, sw, tw, squ, qu.

Each consonant digraph is taught. These are ch, sh, th^1, th^2, wh

Each word family is taught: ab, eb, ib, ob, ub, ack, eck, ick, ock, uck, ad, ed, id, od, ud, ag, eg, ig, og, ug, am, em, im, om, um, an, en, in, on, un, and, end, ind, ond, und, ang, ing, ong, ung, ank, ink, onk, unk, ant, ent, int, unt, ap, ep, ip, op, up, ash, esh, ish, osh, ush, ast, est, ist, ost, ust, at, et, it, ot, ut, atch, etch, itch, otch, utch, aff, iff, off, uff, all, ell, ill, oll, ull, ass, ess, iss, oss, uss, act, ect, ict, uct, adge, edge, idge, odge, udge, aft, eft, ift, oft, uft, amp, emp, imp, amp, ump, ance, ence, ince, unce, anch, ench, inch, unch, apt, ept, ipt, ask, esk, isk, usk, asp, isp, usp, ath, eth, ith, oth, uth, ax, ex, ix, ox, ux, ext.

At the end of Book I the student can read, write and spell 4,000 words based on the pattern:

Beginning consonant sound + word family
consonant blend + word family
consonant digraph + word family
As in the original word family bat flat chat

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[1] FINAL PROJECT REPORT. Perceptual Development Center for Children with Dyslexia and Related Disorders, Director, Mrs. H. Lee Jones, Jr.

MATERIALS (continued)

In Book II the student learns the rules of the English language which apply to these patterns of the language, such as:

1. CVC rule-when one has a word which fits the pattern consonant-vowel-consonant the vowel is usually short. Example: "fat"

2. The "magic e" added to a CVC pattern word changes the vowel from short to long (The e is not really silent-it serves a purpose) Example: "fate"

3. The k sound after a short vowel is usually spelled ck. Example: "kick"

Every rule which shows a pattern of the language is taught with many word examples, and the words are used in sentences for reading material. Every mistake made in reading, writing or spelling is written correctly on masonite with the fingers, then on paper with a pencil. Each rule is pointed out repeatedly in meaningful reading material where it applies.

After all of the pattern rules are taught, exceptions of the language are taught. For example: "tion is a pattern in the language which says "shun". It is not spelled the way it sounds. It is in such words as: action, faction, reaction, attraction - etc."

These words are then presented in sentences. In this way each exception of the language is taught. At the end of Book II [illegible],000 words of the language should have been mastered.

Book III deals with higher language forms and advanced material. All structural and linguistic material is completed in this book. When the student completes the series he has been presented all of the alphabetic and phonetic information of the language in a structural presentation and a completely linguistic breakdown of language from the simplest unit. Beginning with the phoneme the method proceeded to the more complex forms which were patterned and which were exceptions.

Material used in the APSL auditory discrimination instruction is limited to one source, APSL Auditory Discrimination. This manual contains exercises aimed at developing the ability to discriminate speech sounds in words. These exercises are correlated with the materials contained in the APSL basic reading instruction materials. Included in the APSL Auditory Discrimination manual are:

MATERIALS (continued)

1. A general outline of the basic sounds of the language.
2. Approximately 100 lessons such as the one reproduced below:

"C is a consonant sound--

The letter c followed by the short vowel a usually says (k)/k/ as in the word cap. When you make the sound (k)/k/ as in the word cap, the air is blocked by the back of the tongue against the roof of the mouth or soft palate. The air is exploded through the mouth as the sound is made. The vocal cords are not used. You can hear the consonant c sound at the beginning of these words. Have the students say the words as the instructor reads them aloud.

cat
cad
cam
can
cap
cabin
come
camp
cab
cup
cut
cot

EXERCISE: I am going to say some words. Tell me if you can hear the consonant c sound in each of these words. Answer yes or no for each word.

cap
tap
cat
pat
hat
can
cod
tat
Hap
get
cam
can
map
cop
cot
mat

DIAGNOSTIC REVIEW: I am going to say three words. I want you to tell me which of the three words begins with a different letter. Write the letter that is different.

1. add at pat
2. pap pat cat
3. tap cat tat
4. hat Hap pat
5. can cat map
6. ham pan hat
7. Hap tat tam
8. tab tad Pam
9. tag cab cam
10. hag can cad
11. hat pap pad
12. tab tam cam
13. tag pad tap
14. Pam pat ham
15. hag cad hat
16. pap tag tam

DIAGNOSTIC REVIEW: I am going to say some words. I want you to indicate which letter these words begin with. Write the letter.

1. at
2. tap
3. tad
4. pat
5. hat
6. cad
7. cap
8. tut
9. am
10. cab
11. ax
12. tan
13. ham
14. pet
15. cut
16. cot

MATERIALS (Cont'd)

17. hot
18. pod
19. pep
20. come
21. ask
22. cup
23. hop
24. hep
25. tax
26. add
27. tat
28. pup
29. hid
30. cat
31. hit
32. pan
33. act
34. tag
35. pad
36. tab
37. can
38. his
39. Ted
40. tot
41. Pam
42. Cal
43. cabin
44. Tom
45. pug
46. apple
47. Ted
48. pip
49. Hap
50. cup[1]

Supplementary materials will be Reader's Digest Skill Pads, Reader's Digest Master Audio Unit Tapes (Spell Tapes EPC- if spelling data shows need).

Material used in the APSL contextual reading instruction is limited to the Reader's Digest Skill Pads, Reader's Digest Master Audio Unit Tapes (Spell Tapes EPC- if spelling data shows need). These are colorful booklets containing short selections based upon articles or stories from the world's most widely read magazine. Each selection is carefully adapted by reading specialists to a designated reading level and each book includes selections on a variety of topics.

Following most selections, Skill Builders offer:

1. Objective exercises in reading and study skills.
2. Subjective exercises that encourage interpretation and evaluation.
3. Basal Spelling and Reading test may be used where the teacher feels it is appropriate.

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[1] APSL Auditory Discrimination, Reading Disability Center and Clinic, Charles L. Shedd, Margaret E. Shedd, Stephen Ipock, 1967.

PROJECT CHILD - ALPHABETIC PHONETIC STRUCTURAL LINGUISTIC APPROACH TO LITERACY

WEEKLY RECORD

Week of Student's Name

Mon. - Date Tutor

Material Covered: Teacher's Book Pg. No.
Student's Book Pg. No.
Other Material Pg. No.

Special Problems:

Tues. - Date Tutor

Material Covered: Teacher's Book Pg. No.
Student's Book Pg. No.
Other Material Pg. No.

Special Problems:

Wed. - Date Tutor

Material Covered: Teacher's Book Pg. No.
Student's Book Pg. No.
Other Material Pg. No.

Special Problems:

Thurs. - Date Tutor

Material Covered: Teacher's Book Pg. No.
Student's Book Pg. No.
Other Material Pg. No.

Special Problems:

Fri. - Date Tutor

Material Covered: Teacher's Book Pg. No.
Student's Book Pg. No.
Other Material Pg. No.

Special Problems:

PROJECT CHILD - ALPHABETIC PHONETIC STRUCTURAL LINGUISTIC APPROACH TO LITERACY

AUDITORY DISCRIMINATION RECORD

SCHOOL:

TEACHER:

Auditory record	Monday	Tuesday	Wednesday	Thursday	Friday	Week's
Total per day						
NAME:						
NAME:						
NAME:						
NAME:						
NAME:						
NAME:						
NAME:						
NAME:						
NAME:						
NAME:						
NAME:						
NAME:						

APSL

AUDITORY TRAINING

WEEK OF ____________________

STUDENT'S NAME ______________

	Test ______ Monday	Test ______ Tuesday	Test ______ Wednesday	Test ______ Thursday	Test ______ Friday
100					
90					
80					
70					
60					
50					
40					
30					
20					
10					
0					

COMMENTS: ____

APPENDIX B

PROGRAMMED INSTRUCTION INTERVENTION MODEL

DESCRIPTION OF THE INSTRUCTIONAL PROGRAMS

PROGRAMMED INSTRUCTION INTERVENTION MODEL

The Programmed Instruction (PI) intervention model is a structured, linearly sequenced, individually applied instructional program. The basic assumption upon which this program relies is that language disability is characterized by gaps in sequence of skills, low motivation, and inadequate prior training.

The materials used in this intervention model are principally linear instructional programs which can be worked through by the student with only minimal direction by the instructor. The language disabled child works through the programs at his own rate, but in a strictly linear fashion with no sequences deleted. Regular assessment of pupil progress permits some recycling and reassignment.

In this intervention model the learner is placed into appropriate programs at his level based upon diagnostic information. Although progression through the instructional sequence is linear and the programs are highly structured, the student does have some alternatives. If he fails to progress he may be given additional work in the particular program area in which he is experiencing difficulty, he may be required to repeat material, or he may be assigned parallel materials.

The materials and methods of this intervention model are pre-determined and are based on the nature of language disability not on the specific needs of individual learners. Although there is a degree of flexibility and individualization in their application, this must be within the limits of the pre-determined materials and mode of instruction.

TEACHER: INTERVENTION METHOD

erforms as a facilitator for programming instruction.

As the materials used in the Programmed Instruction intervention model are predetermined for all language handicapped children, the teacher's role in material selection is limited to organizing the schedule so that each student is given sufficient time daily to complete the required exercises in each set of material (this schedule is described more fully under Teacher-Student Relationship).

The placement tests included with the materials used in this intervention model require only that the teacher administer the test, grade them and place the student at a certain level based on test material placement charts provided by the publisher. (Manner and level of placement are described completely under Program Placement).

One criteria for selection of material was that it could be used with a minimum of teacher direction and yet require active participation of the learner. Each student has an explicit schedule of tasks to be completed each day, and the completion of each task will produce certain written or oral responses independent of the teacher's presence. Thus, the teacher's role is to move from student to student making sure that each one is progressing satisfactorily, monitoring oral responses, and checking the written responses of each student.

TEACHER-STUDENT RELATIONSHIP

Teacher will provide structure but allows for roup instruction within academics.

In the Programmed Instruction intervention method the teacher adheres to the instructional pattern prescribed by the model. (Work at individual level and rate in groups) The basic materials are prescribed for all students and the teacher organizes the day so as to provide time for each student to work in each material. All members of his group will be working in the same material, e.g.; SRA Reading Laboratory, but each student will be working at a level appropriate for him as determined by the teacher.

learner's assessment daily ver nine exercises prescribed by teacher.

In order to effectively program students through the PI intervention model, the teacher must monitor student progress daily. This monitoring is accomplished primarily through daily evaluation of students' written work. Each of the following sets of materials is organized on the basis of short lessons which either include or consist of questions or problems that require objective answers which can be checked easily for accuracy and yet offer indications of specific difficulties which the learner is experiencing:

1. SRA
2. RFU
3. English-Benton (Levels 1-7)
4. Math-Sullivan (Levels 1-6)

EACHER-STUDENT RELATIONSHIPS
(continued)

5. Controlled Readers
6. Map Skills-Weekly Reader
7. Read, Study, Thin,-Weekly REader
8. Science, Science 1-4 and Hayes Spirit Duplicating Practical Science, Book 4
9. Spelling-SRA (Levels 1-6)
10. Social Studies-Steck-Vaughn, Geography (Levels 3-6), Continental Press, Social Studies 1 & 2
11. Handwriting-Steck-Vaughn, Beginning and Advanced Cursive
12. Sullivan Reading (Levels 1-21)

The teacher is required to collect and supervise the grading of a minimum of nine exercises daily for each student. These nine scores serve the dual purpose of (1) monitoring individual student progress and (2) determining the next day's activity.

Criteria used to determine student progress and schedule future work are 1) total amount of time required for the student to complete his work, 2) number of exercises completed, 3) time required to complete each exercise 4) number of errors made and 5) type of errors made. In order to continue at the same pace and in the same schedule the student is expected to perform at a ninety percent level of accuracy. For example, if a student is scheduled to complete three SRA Reading Laboratory exercises in a thirty minute period, he is also expected to maintain a ninety percent correct score on each of the three exercises. For those who are unable to perform at the expected level, effort will be made to determine such factors as whether 1) he is using his time effectively 2) his error pattern is of a general nature indicating that he should be in a lower level or 3) he is having difficulty with a specific item such as initial consonant blends.

Praises student progress through graphic displays; reward progress with various extracurricular activities.

A basic assumption of the Programmed Instruction intervention model is that the language handicapped student has established behavior patterns which interfere with his academic achievement almost as much as the handicap itself. In order to change these patterns so that students will develop favorable work habits, emphasis is placed upon rewarding desirable behavior patterns.

Rewards are limited to items of no monetary value. A primary type of reward is a chart of student progress. For each of the nine sets of materials in which students do frequent written exercises, the teacher keeps a wall chart. Each student's progress is plotted as he completes the exercise and it is scored by the teacher.

Other means of recognizing desirable work habits include allowing students free time in which they can select from a variety of activities not included in the regular

TEACHER-STUDENT RELATIONSHIP

(continued)

schedule and allowing field trips for those students who are performing according to teacher expectancy. Expected behavior varies from student to student; thus, while one student may have to complete three exercises in the SRA Laboratory per day, another may be required to do only one. In either case the student is informed as to what is expected of him; those who do not perform as required are not given free time and are not allowed to go on field trips.

Of course, teacher praise is also a significant part of the reward system. As teachers move about the classroom monitoring individual progress, they praise students verbally and non-verbally when performance merits such praise.

INSTRUCTIONAL COORDINATOR

- Will assist in developing and interpreting student's profile.

Each school district operating an instruction component has employed an instructional coordinator.

The role of the coordinator in the Programmed Instruction intervention method is to assist the teacher in the analysis of work being done by each student. On the basis of nine written exercises per day, there will be a total of ninety discrete pieces of work for each student during each two week period. The teacher may request the aid of the coordinator in examining the progress of each student in determining whether there should be modifications in his schdule or the teacher's expectations regarding his behavior.

The coordinator is also charged with seeing that teachers in this intervention method maintain adequate files of student's work, score the required number of student exercises daily and chart student progress regularly.

EDUCATIONAL DIAGNOSTICIAN

Diagnostician will make initial visit.

Diagnostician will make initial visit to each PI classroom during the early part of the year, then will be available during the year on request or as needed by teacher.

Many of the materials prescribed for the Programmed Instruction intervention model have placement tests for determining each student's functional level in that particular material. These placement tests are utilized by the teacher to determine the student's functional level. For those materials not having their own placement protocol the teacher uses the available screening data, cumulative folder data, and certain informal teacher-made instruments to determine functional level.

PROGRAM DEVELOPMENT

Learner will be placed in basic materials 11/2 to 2 years below level of actual functioning.

Using the placement methods described above,the teacher determines her best estimate of the grade level at which each student is functioning. She then places the student one and one-half years below that level. This discrepancy between functioning and placement levels is to accomplish two factors: 1) compensation for any error which may occur in the process of determining functioning level and 2) provision for immediate successful experience for the student.

Classroom is organized in terms of small groups.

The organizational structure within the Programmed Instruction intervention model classroom is a function of the materials prescribed for that intervention model. The students are organized for group work in each of the basic materials. Grouping on this basis serves two important purposes: (1) it serves as an automatic control to assure that each student works in each of the prescribed materials daily, and (2) it contributes to the individual student's sense of security and affiliation by giving him a unit with which to identify.

Within each of the groups there is provision for individual differences and each student works at his appropriate level and rate.

Learner will work individually with a daily schedule provided.

The student's individual program is determined by (1) his functional level in each of the basic materials, (2) his functional rate in each of the basic materials, (3) his learning profile as developed from the nine exercises scored and collected daily. These factors in interaction formthe basis for producing a daily schedule of activities for each student.

Minimum Time Frames

RFU	30 minutes	Per Week	
SRA	1 hour	"	
English	2 1/2 hours	"	
Math	2 1/2 hours	"	
Social Studies	1 hour	"	
Science	1 hour	"	
Read, Study, Think	1 hour	"	
Map Skills	1 hour	"	
AVK	2 1/2 hours	"	Combined
Spelling			
Reading (Sullivan)	1 1/2 hour	"	
Handwriting	1 hour	"	
Oral Reading	1/2 hour	"	

PROGRAM DEVELOPMENT (Cont'd)

Daily schedule will vary as to small group.

In the Programmed Instruction intervention model the daily schedule (in contrast with the APSL intervention model) is not held constant. For example, the Monday schedule is for one of the organizational units may call for 50 minutes in the Science Research Associates Reading for Understanding series but the Tuesday schedule could be cut to 30 minutes to allow that particular group additional time in some other basic material. Decisions of this type are based on the student's learning profiles.

Recycling possible through parallel materials. Determined by teacher & educational diagnostician on the basis of weekly profiles.

When the educational diagnostician and the teacher agree that a student's learning profile reflects a pattern of errors necessitating recycling, the student may be recycled through the same material or he may be recycled through paralled material.

For paralled materials the teacher must rely to a great extent on teacher-prepared materials and commercially prepared materials as modified by the teacher. For example, the AVK materials are all teacher prepared audio tapes with acccompanying cards. A typical AVK session will include a taped series of ten words all requiring a given word attack skill. The student listens to each word played on tape as he reads it on the corresponding card. He then pronounces the word, writes it on a blank card and reads what he has written. He then proceeds to the next word.

In each Programmed Instruction classroom there are also several series of readers such as Checkered Flag Series, Jim Forest and Dolch Readers. These books are customarily used as free time activities for those students whose work merits such a reward. However, the teacher may also develop written exercises based on these books and used to recycle students through skills which they have not mastered in the basic materials.

Learner proceeds through a limited set of materials; as determined by constant daily interaction.

In the Programmed Instruction intervention model the studen proceeds through that limited set of materials previously listed. The rate of progress and the levels of accomplishment are monitored daily and the information thus generated forms the basis for directing the next day's activities.

MATERIALS

earners will be programmed in:

1. SRA
. RFU
. English-Benton (Level 1-7)
4. Math-Sullivan (Levels 1-6)
. Controlled Readers
. Map Skills-Weekly Reader
7. Read, Study, Think-Weekly Reader
. Science, Science 1-4 and Hayes Spirit Duplicating Practical Science, Book 4
. Spelling-SRA (Levels 1-6)
. Social Studies-Steck-Vaughn Geography (Levels 3-6), Continental Press, Social Studies 1 & 2.
11. Handwriting-Steck-Vaughn Beginning and Advanced Cursive.
1. Sullivan Reading (Levels 1-21)

The SRA Reading Laboratory Series is basic to the Programmed Instruction intervention model. Each classroom is equipped with the SRA Reading Laboratories for grades 2, 3, & 4.

The SRA Reading Laboratory Series includes skill-building materials that span a number of ability levels. They are designed to permit each student to begin at his appropriate level and to progress at his own rate. Reading levels are determined by the student's performance on a series of stories in the student's books.

Reading selections and exercises are grouped at the reading levels normally found in a class, and all components are color-coded to these levels. Students use student books, My Own Book for Reading/Listening or appropriate work sheets to record responses to exercises included with the program.

Each Reading Laboratory contains power builders, rate builders, listening skill builders, and student record books.

Power Builders are illustrated, four-page reading selections accompanied by exercises designed to help students develop vocabulary, comprehension and language skills. Fifteen Power Builders are provided at each of the ten reading levels contained in each grade level laboratory.

Rate Builders are short, timed reading selections designed to develop reading speed and concentration. Each selection is followed by comprehension questions. Fifteen Rate Builders are provided at each of the ten reading levels in each grade level laboratory.

Listening Skill Builders are selections that are read to the students to develop their ability to understand, retain, and analyze what they hear. The Listening Skill Builders are included in the Teacher's Handbook. After hearing each selection, the students test their comprehension by answering questions in the student record book.

Student Record Books introduce procedures of the Reading Laboratory and present basic concepts on which Power Builder exercises are built. Responses to all Reading Laboratory exercises are written in the Student Record Book.

MATERIALS (continued)

The SRA Reading for Understanding material is an individualized reading program designed to develop the student's ability to grasp the full meaning of what he reads by teaching him to analyze ideas and make logical conclusions. Each exercise in Reading for Understanding consists of a card bearing ten short, provocative paragraphs about a specific subject. The student reads the selections and chooses the best of four suggested conclusions, implied in the selection but never directly stated.

The RFU materials include 400 lesson cards arranged in progressive levels of difficulty. A simple placement test is included. As the student demonstrates proficiency he is able to progress to more difficult levels.

Each student works independently, recording his responses in his Student Record Book.

The Weekly Reader materials used include the Map Study. Map Study focuses on the skills essential for understanding the pictorial presentation of information such as application of keys and legends, use of small units of measurement to represent larger units and interpretation of the various means of portraying discreet geological features in map form

The Controlled Reader is a projection device used in a form of training in which symbols, words, or stories are projected in a left-to-right manner at a predetermined rate in order to develop a wide range of visual-functional and interpretive skills.

Use of the Controlled Reader makes possible improvements in visual mobility and coordination. Directional attack is improved as the reader makes fewer fixations and fewer regressions, thus broadening his span of recognition. The left-to-right moving slot accelerates the student's reading while encouraging him to approach each line of print in a more efficient and sequential manner.

Soft-ware used with the Controlled Reader includes a set of 200 film strips designed to build reading fluency at reading levels 1, 2, 3, & 4. These include factual and fictional selections dealing with animals, monsters, space exploration, mystery, and fantasy, which appeal to older students reading at lower levels. The vocabulary correlate with most basic reading series.

Beginning with a pre-primer vocabulary of 68 words, a limited number of new words is introduced in each story and reinforced throughout subsequent stories.

MATERIALS (continued)

A Controlled Reading Study Guide accompanies each story. The Study Guide provides a preview activity, a word study section, and a page of comprehension questions. The complexity of the activities and questions increases from level to level. Each set of filmstrips is also accompanied by a booklet of Lesson Plans which provides the teacher with questions for establishing a common background of experiences, vocabulary exercises, and discussion and review questions.

Benton Review Materials are series of small paperback booklets which provide exercises for drill in the various skills commonly found in the elementary grades. The work done in the Benton materials is offered by the Level 3 language booklet which includes drill on sentence construction, punctuation, capitalization and grammar usage.

Science, Golden Press, Paperback Workbooks, grade levels 1-4, utilizing practical concepts and useful activities of science. Workbooks are consumable. Topics include air, sound, water, magnets, machines, light.

Programmed Math (Levels 1-6), Sullivan, Webster Division, McGraw-Hill, includes a placement test and student workbooks covering addition, subtraction, multiplication, division, and fractions. The student proceeds through the series at his own rate receiving immediate reinforcement by checking his own answers. This series is especially appropriate for reluctant readers, since verbalization is held to an absolute minimum.

Sullivan Programmed Reading Series, McGraw-Hill, (Levels 1-21) combines a developmental linguistic approach with the technique of programmed instruction. Initially, sounds are taught in isolation, but a whole word approach is applied later because of the lack of a strict sound and graphic symbol association in the English language. Each child progresses at his own individual pace receiving immediate reinforcement for his responses by checking his own answers. As the child learns to read words he also learns to write and spell the same words.

Words and Patterns: A Spelling Series, Grades 1-6, SRA is a linguistically based spelling program which introduces spelling systematically, according to the patterns of our language. Spelling patterns are organized so that children can quickly see which are regular or most usual for each sound, which are employed in large numbers of words although they may not be the most usual spelling, and which are so unusual as to require memorization.

MATERIALS (continued)

A distinctive feature of the program is the fact that the child receives instant feedback and reinforcement through the use of answer strips thus reducing exposure time to his own misspelling.

Science, Lesson and Experiments Book 4, Hayes, is made up of sixty-seven spirit masters on simple science experiments including the following subjects: air, airplane parts, chemical changes, electricity, foods, heat, light, use of wheels, inclined planes, levers.

Beginning and Advanced Cursive Books, Steck-Vaughn includes a complete program for teaching beginning cursive writing progressing from individual letters, letter combinations, and words to sentences, stories, and poems. Imaginary lines and other functional aids assist the student in writing legibly.

Geography (Levels 3-6), Steck-Vaughn includes worktexts entitled Life Near and Far, Life in Different Lands, Life in the Americas, and Life in Lands Overseas. The contents of the worktexts include activities to develop skill in the use of maps and globes, and information about the earth and its neighbors.

Social Studies (Parts 1 and 2) Continental Press, is made up of 60 spirit masters for each of the two parts which are entitled "People Live Together."

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PROJECT CHILD - PROGRAMMED INSTRUCTION

Evaluation Form

This evaluation form is to be made on each student throughout a reporting period.

Student's Name ______________________________ School ____________________

Beginning Evaluation Date ____________________ Ending Evaluation Date ________

Teacher ____

Materials or Techniques Used	Beginning Level	2nd Week	4th Week	Current Level
S.R.A.				
R.F.U.				
Controlled Reader				
Read, Study, Think				
Science				
Map Skills				
Arithmetic				
Spelling Lesson				
Audio-Visual Kinesthetic				
Reading Textbooks				
1.				
2.				
3.				
English				
Special Instruction				
Summary of Progress				

Program Recommendation Continue Modify
(Circle One)

PROJECT CHILD - PROGRAMMED INSTRUCTION

Periodic Assessment Form

This periodic assessment form is to be made for each LD pupil every reporting period after entering the program.

NAME ______________________________ DATE ____________________

	Never	Seldom	Often	Usually
SOCIAL ASSESSMENT: (indicate below)				
Spends time with other children				
Displays balance in social interchange				
Follows rules				
Controls temper				
Uses socially acceptable language				
Derides peers				
Discriminates against others				
Is a good loser				
Tells on peers				
Wants special attention				
Wants special privileges				
Respects authority				
SCHOOL ATTITUDES: (indicate below)				
Bluffing				
Daydreaming				
Destructive				
Distracting				
Idle play				

	Good Progress	Needs Improvement
Social Growth		
Interest Span		
Usual Posture		
Behavior Growth		

COMMENTS: ______________________________

APPENDIX C

INDIVIDUALLY PRESCRIBED PROGRAM APPROACH

DESCRIPTION OF THE INSTRUCTIONAL PROGRAMS

INDIVIDUALLY PRESCRIBED PROGRAM APPROACH

The Individually Prescribed Program approach (IPP) is a non-linear, unstructured, individualized method of instruction based on the assumption that by pinpointing the nature of the language disability the teacher will have a rational basis for selecting a particular remedial method. This program begins with a determination of each learner's profile through an assessment of his assets and deficits. Individual instructional strategies are devised or selected to ameliorate the child's deficits and to utilize his strengths to attain appropriate educational progress.

Materials and methods are selected from a wide variety of alternatives. Resources and methods are in no way limited by this instructional approach but rather are a function of the needs of the individual learner.

Diagnosis within this method is dynamic. Appraisal results are seen as tentative and the student's profile is constantly reviewed and revised according to his daily classroom performance. Instructional strategies are eliminated and new ones are devised as indicated by daily evaluation of student progress.

TEACHER: INTERVENTION METHOD

Works with educational objectives for each learner.

The teachers role in the Individually Prescribed Programs intervention model includes diagnosis, development of objectives, selection of materials, and instruction.

The teacher and educational diagnostician evaluate and analyze appraisal information and conduct staffing conferences presenting their analysis. The staffing conference affords an opportunity to modify or expand upon conclusions based upon information and interpretation supplied by other participants. (Principal, former teacher, supervisor, psychologist, psychometrist) Information developed in this conference is organized and reported in four categories. These are (1) analysis of educational strengths, (2) analysis of educational weaknesses, (3) general teaching techniques, and (4) remediational activities for specific areas of disability. From this detailed statement the teacher develops specific educational objectives for all students. These objectives serve as the basis for planning the student's schedule, selecting the materials in which he will work, placing him at an appropriate level in those materials, and measuring his progress.

Concerning material selection, each teacher is provided a basic stock of instructional materials (described below) which is placed in her classroom. The teacher is also allowed to use whatever materials are available in her building, from central school district services and from the Special Education Instructional Materials Center at the Education Service Center, Region 10.

Classroom organization and instructional methods employed are also dependent upon the educational objectives specified for each student. These can range from individual tutoring by the teacher or aide through self directed individual activity to small group work.

TEACHER-STUDENT RELATIONSHIP:

Teacher determines and defines role of relationship on basis of educational objectives.

In the Individually Prescribed Programs intervention model the teacher-student relationship is determined by the analysis of each student's needs. In that part of the staffing write-up devoted to general teaching techniques there are recommendations made regarding the pattern of relationships which might be most effective with the particular student. An example of this type recommendation taken from a staffing write-up is given below:

"1. Keep desk near teacher so that student can get feedback at regular structured intervals (but insist she keep a contract and finish designated blocks of

TEACHER-STUDENT RELATIONSHIP (cont'd)

work before giving her attention so she will understand that she cannot ask for superfulous help.)

2. Set clear, realistic expectations and try to keep firm, consistent limits.

3. Try to praise effort, good attitude and any signs of improvement in work right away. Point out to her specific things in her work that have improved from day-to-day. Praise her in front of whole class for a job particularly well done, or for example of a good attitude."

Controls rate of learner's progress as stated by educational objectives.

The rate of the student's progress is defined in the staffing conference write-up and in the specific educational objectives developed for each learner. This is best illustrated by some recommendations from a staffing write-up:

"1. Have a daily work contract with each assignment broken into blocks after which she can get feedback and approval. Initially keep the blocks small in areas that are hard for her and then increase them as her frustration tolerance and attention span increase.

2. Let her work with timer to pace herself when working on subjects in which she works too slowly. Let her keep an assignment time chart so she can see how much she accomplishes in a designated time period from day to day."

Methods of praise determined by educational objectives.

The type of reward or method of reinforcement which should be most efficacious is delineated in each student's staffing conference write-up and in the specific behavioral objectives developed for him. An example of this taken from a staffing report is given below:

"1. Give her chances to earn art project or special privileges as reward for charted improvements in assignments over 1-2 week period.

2. Try to praise effort, good attitude and any signs of improvement in work right away. Point out to her specific things in her work that have improved from day to day. Praise her in front of whole class for a job particularly well done, or for example of a good attitude.

3. Let her use the Flash-X as a reward in free period to help with visual memory and visual sequencing.

TEACHER-STUDENT RELATIONSHIP (cont'd)	4. Work on her social and emotional maturity, first by improving her self-confidence through daily successes praise, and special rewards. 5. Assign her weekly responsibilities and praise her fo carrying them out well without reminding.
EDUCATIONAL DIAGNOSTICIAN:	
Assist teacher in all facets of programming; works with teacher to develop educational objective.	As stated above, the educational diagnostician works very closely with the teacher in the Individually Prescribed Program intervention model. The diagnosticia helps the teacher interpret whatever appraisal data are available; including cumulative folder information, results of Level II appraisal, and observation of the child in the classroom. So that the diagnostician's recommendations will have more substance, she visits in each classroom to observe the children for whom she is planning educational programs and compares her observation notes to the other available data. She and the teacher then collaborate to formulate specific educational objectives, to develop an instructional program, and to plan periodic assessments of the program's effectiveness for each child.
Refer learner for re-staffing if in her opinion the prescribed program is ineffectual. (weekly)	Another important aspect of the diagnostician's role is the continuous monitoring of student work and progress in the prescribed program. Such monitoring is accomplished through classroom visitation and examination of student work. Situations in which a student is not meeting the objectives specified for him will necessitat some modificaiton of his program or its implementation. Either the teacher or the diagnostician can initiate such an action, but the diagnostician should approve any alteration before it is made. Decisions regarding the effectiveness of any particular child's program will range from leaving the program completely intact through making minor modifications to insure continued progress to recommending a completely new staffing conference in order to develop a new prescription for a child whose progress is completely unsatisfactory.
PROGRAM PLACEMENT	
A committee will provide an initial evaluation of each learner (physician, psychologist, principal, teacher, educational diagnostician, supervisor). Educational diagnostician will be responsible for final development of learner's educational program.	A staffing conference is a major part of the evaluation process for each student in the Individually Prescribed Programs intervention model. This conference brings together those professionals who have responsibility in the diagnostic and instructional processes for the purpo of providing a forum for the exchange and evaluation of information regarding the nature of the student's disability, the extent of the handicap, the psychometric data available, and recommendations for habilitation.

PROGRAM PLACEMENT (continued)

Participants in this conference must include the classroom teacher and the educational diagnostician and may include any professional having useful information regarding the particular student. Decision as to who will participate in the staffing conference is made by the educational diagnostician.

As a result of this staffing conference, the educational diagnostician develops a prescription for the individual student. This prescription includes test results, analysis of educational strengths, analysis of educational weaknesses, general teaching suggestions, and remedial activities for specific areas of disability. Samples of these educational programs follow:

CASE NO.________________

SPECIAL EDUCATIONAL SERVICES DEPARTMENT
EDUCATION SERVICE CENTER, REGION 10
P.O. Box 1300
Richardson, Texas 75080

CONFIDENTIAL*

Date Logged ________

Date(s) of testing: 8-7-72

IDENTIFYING DATA: Project CHILD Irving IPP Brown LD

Name of Pupil [redacted] (First) ____ (Middle) [redacted] (Last)

Placement ________

Age 9-3 Date of Birth 4-27-63 Sex M

School Brown District Irving

Judith Samson
Special Educational Services Consultant

Jim George
Jim George, Director

Ertie Lou Rinehart
Ertie Lou Rinehart, Psychologist

Jo Hitt
Jo Hitt, Coordinator

____
Psychological Examiner

____
Educational Programmer

____
Speech/Language Examiner

*The information contained in this report is to be used with professional staff only.

Developed & Produced by Special Educational Services Dept Education Service Center, Region 1(

9/72

INITIAL EDUCATIONAL PROGRAM   PROJECT CHILD

[redacted]
LD
Brown Elementary

I. Testing Results (8-72) For subtest scatter, see enclosed graphs.

WISC: Verbal Scale 103   Performance Scale 96   Full Scale 99

Duane's WISC scores reflect only slightly the actual deficits that are more clearly revealed elsewhere in his testing. The most significant aspect of the WISC protocol is the indication that his overall potential is normal, and that his verbal skills have improved markedly with the help of reading and speech therapy, even though he still has difficulties in these areas. From listening to his speech, it would be anticipated that he would have much more auditory perceptual difficulty than he actually does have in functioning, thus indicating the acquisition of compensatory skills.

The main deficit areas revealed in the WISC are in visual-motor integration areas, that require analysis and reproduction of spatial orientation and spatial relations.

ITPA: age equivalent: 7-7

Duane's overall psycholinguistic age is a full two years below his chronological age and his mental age. Both auditory and visual channels show deficiencies. He has particular difficulty processing verbal patterns auditorally, and tends to be very weak in automatic level grammatic closure, in sound blending, and in auditory association. His speech habits reflect these perceptual deficits, with stilted speech, dropping many sounds and word endings, difficulty with certain sound articulations. But in addition to his auditory-verbal deficits, he also shows lowered scores in visual closure, a skill closely related to visual-motor integration, and to word recognition and word analysis.

BEERY VMI: age equivalence: 5-0

Duane shows serious distortions in visual motor skills beginning at the first grade level. Rotations, confusion, omissions, substitutions, overinclusion, distortions all characterize his production. There are numerous classic indications of neurological impairment, resulting in visual-motor dysfunction.

II. Educational Strengths

1) Duane's ability to glean information, to use common sense judgement, to see relationships in verbal concepts, and to use expressive vocabulary are all in the normal range. His auditory memory is also normal. His overall intelligence indicates normal potential.

2) Duane shows isolated skills in both channels that are normal: visual reception, manual expression, auditory memory, are all normal for his age, even though related skills are weak.

3) Despite inaccuracies in production, his visual-motor speed is good.

III. Educational Weaknesses

1) Duane is a child who has a pattern of verbal-auditory and visual-motor disabilities common to children with neurological disorders called minimal brain injury. This is not a neurologist's diagnosis but one based on functional disabilities in all learning channels. Although he has improved and compensated to a large degree through speech and reading therapy, he continues to have major learning difficulties. Priorities will have to be established since he does have so many deficit areas: since the automatic level disabilities are the most basic ones, these would logically demand remedial attention before the representational level or conceptual skills, even though the latter may prove the more important in the long run.

2) Duane needs intensive remedial work in sound discrimination, automatic grammatic usage, continued speech articulation work, sound blending, and visual closure drills. Drills in these areas should take priority, and may continue to be the focus of the 1/1 tutorial work done with him throughout this year. Since a limited amount of time daily can be spent with him an a 1/1 tutorial basis, I would recommend daily media work and drill in the following order:

..auditory discrimination
..visual-motor program involving visual closure, visual discrimination, figure-ground discrimination, spatial orientation, and spatial relations, such as are covered in the Frostig Visual-Motor Program.
..sound blending in intensive phonics training
..grammatic closure training

I would also recommend that the speech therapist be shown these testing results and be requested to re-evaluate his speech progress to see whether she feels he needs continued speech therapy this year.

3) Duane is still a tense, jittery little boy who tends to dislike school and the tasks demanded of him, which increase in difficulty while he still copes with inadequate basic skills. He needs much reinforcement through materials and activities guaged around the 2nd grade level in most subjects, to insure success experiences and improved motivation. These low level materials can be supplemented with high-interest discussions and multi-media aids.

IV. General Teaching Techniques

1) Since no learning channel is intact for Duane, it will be important at all times to present all instruction to him in as many ways as possible--auditory, visual, tactile, and when possible kinesthetic (through acting out, role-playing, walking through demonstrations, etc.). When this is not done with the whole class,

arrangements should be made to give individual and repetitive instruction and review to Duane, either individually or through visual and auditory aids.

2) Since he has so many automatic (non-conceptual, involuntary) level perceptual deficits, he will need much repetitive drill and training. Arrangements should be made to organize a daily schedule for him that allows for 1/1 tutorial drill with an aid, the teacher, or another student, and also much work at listening and viewing centers. He is a child who needs and will benefit from such mechanical repetitive drill in both auditory and visual channels, and will benefit rather less from independent study and from class discussions since many of the skills required in these activities are at quite a low level for him.

3) Be sure that his seating arrangement allows him to see and hear clearly with as little distraction from noise, neighbors, visual displays etc. as possible.

4) Organize a motivational, reward system for him using charts or graphs for his progress in at least one drill-work area weekly--e.g. in sound-discrimination drills, or in a phonics workbook. He needs to see concrete proof of progress and success on a day-to-day basis, as well as hear praise, as he has become a discouraged child.

V. Specific Remedial Suggestions

There are so many aspects to Duane's remedial needs, that an endless list of activities could be suggested. Rather than burdening you with too many recommendations, a few areas and activities for remedial work will be written down here, to be covered in the next 6 months, with a subsequent evaluation of his progress. If his gains have been excellent, and he is in need of much additional material and activities, additional recommendations will be made at that time.

1) Auditory Discrimination

A good daily program can be discussed with his speech therapist. She may feel that he needs to be returned to speech therapy. If not, she may suggest reinforcement drills for sound-speech work that can be done in the classroom. In the meantime, paired words that are the same or similar can be given to him orally, such as pin-pan, soap-slope, sit-sit, man-mat, cat-can, wheat-wheat, etc. for him to identify as 'same' or 'not the same'. The administrator's mouth should be hidden by paper or her back should be turned so he cannot use visual cues or mouth-reading.

Programmed audio flash cards at the lowest 2nd grade level should be used regularly, along with *Language Patterns* from Continental Press, *Phonics is Fun* with workbooks at 1st and 2nd grade levels (be sure to reinforce this work orally), and Auditory Perception cassettes and worksheets at the primary level. Sound-Order-Sense should be used as listening awareness drills, and then the sound-discrimination drills should be given to him individually or in a small group. He may need to repeat the drills more than once.

Tapes and records of familiar sounds can be very helpful if there is time to borrow or make them. Numerous excellent auditory training materials are available through the ESC-10 media center catalogue under Perceptual Motor section and Language Arts section. (The functional level is always listed; and he functions largely at the 7-71/2 year level at this time.)

In giving him directions, be sure to use short simple vocabulary, and many visual cues.

Review with him all sound-letter associations, beginning with the sustained sounds (s,m,n,f,sh,r) and then the non-sustained sounds (t,d,k,p.).

Give daily drills with the Hegge, Kirk and Kirk Remedial Reading Drills.

2) Sound-blending difficulties will essentially be covered in the auditory training drills above if phonics and speech training are instituted and intensively carried through on a daily basis.

3) For visual-motor integration and closure:

Begin with daily exercises (ditto worksheets) from the New Frostig Program for the Development of Visual Perception, available through the ESC-10 media center. These materials teach visual motor integration, spatial relations, figure ground perception, perceptual constancy and position in space.

Alternate visual-motor training programs, also available through ESC-10 media center are:

Developmental Program in Visual Perception (68-0080-0086)
Perceptual Skills Development (68-0313)
Progressive Visual Perception Training, Levels 1,2 (68-0274 and 75)
Seeing Likeness and Differences (68-0287,88,89)
Russell Perceptual Sorting Program (68-0208)
Spatial Relation Picture Cards (68-0250)
Visual-Motor Integration Program (68-0310 through 80)

Duane needs intensive daily work with materials such as these listed above. The best use of tutorial help may be gradually to help him integrate the skills he develops through these drills into the more pragmatically focused subjects of reading, spelling, writing by relating visual-motor skills specifically to the materials involved in these subject areas. This can be done by supplementing specific drill exercises with informal writing exercises, practice with the spatial aspects of math computation (transferring problems to paper accurately, keeping columns straight, borrowing and carrying, etc.), and reading speed and evenness.

Other informal visual-motor training activities may include using teacher-made or readily available objects and shapes for sorting and matching. Also good are pictures that have something wrong to be identified, completing incomplete pictures on ditto.

connecting the dots, tracing, mazes, reproduction of patterns with blocks or pegboards (or use Chinese Checkers, infants' design blocks, tile blocks, etc.). Puzzles of sequential difficulty are helpful, including either figure representation or abstract design.

Flash-X, Controlled Reader and System 80 are all good visual training media.

The Peabody Language Development Kit contains a section with sequential picture cards that is excellent training with an auditory-visual association technique.

The Fitzhugh Plus Program in Perceptual Learning and Understanding Skills contains excellent programmed workbooks dealing with perceptual skills, and is also available through ESC-10 media center.

4) For grammatic closure, all auditory training will help, as it requires him to listen and repeat patterns over and over. In addition, the Language Patterns workbooks should be tried to see if they suit his level of functioning.

Listening to records and tapes is useful in that repeated exposure to proper language patterns and grammatic structure tends to reinforce the automatic usage of these patterns.

Many informal techniques can be developed. The music teacher's help, for example, can be enlisted in using choral readings for memorization and repetition. Choral readings, as well as recitation of poems and dramatic readings, will lock the child into verbal sets. Memorizing and repeating nursery rhymes has the same effect.

These same poems and nursery rhymes can be practiced with a partner: the reader reads the rhyme, leaving out certain key words for him to fill in from memory. This varies such repetitive practice sessions, in a game-like manner. In like manner, incomplete sentences focusing on difficult grammar items such as plurals, noun-verb agreement, pronoun usage, prepositions and conjunctions, can be given to him orally or on ditto sheets to complete.

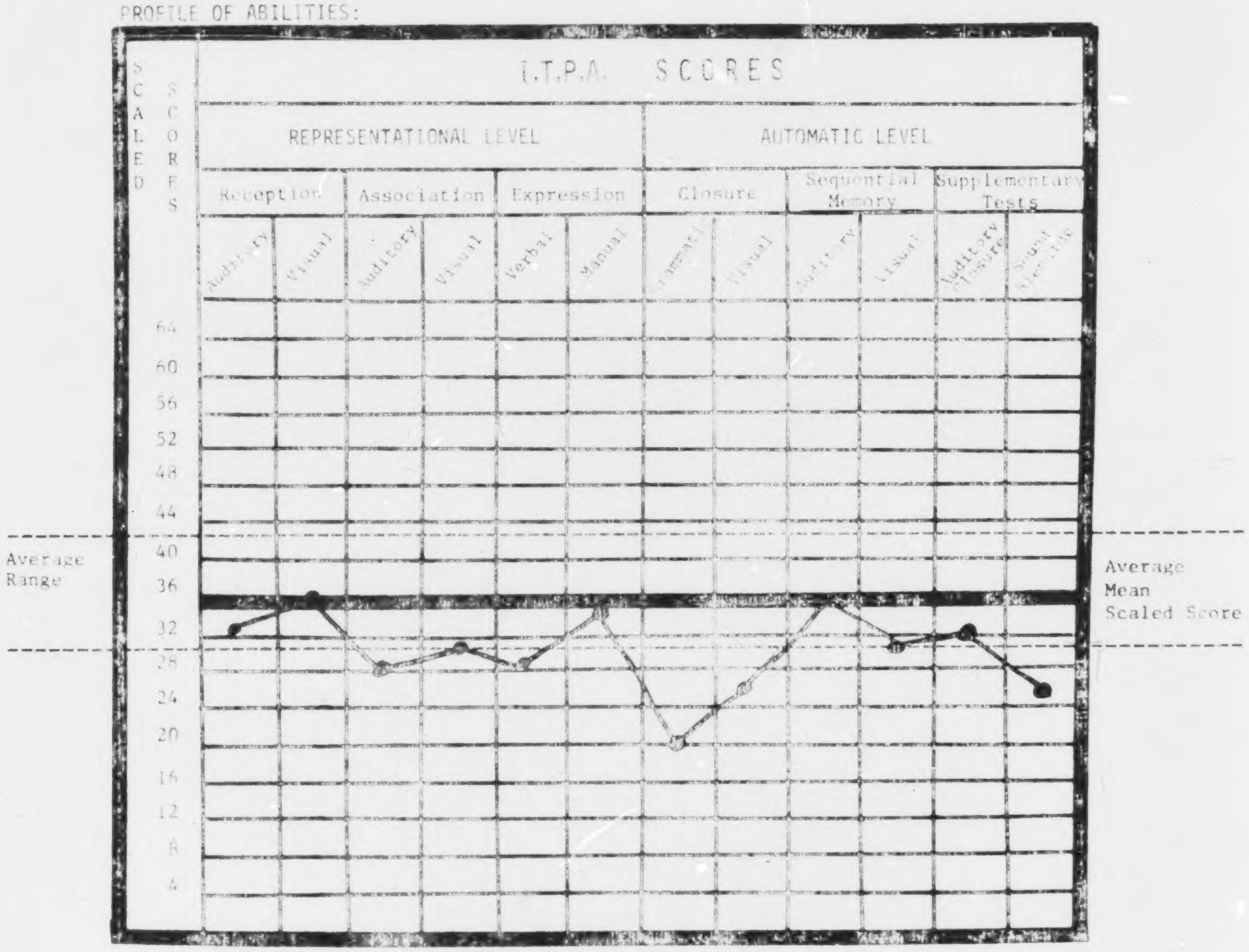
Audio-flashcard grammar and phonics programs are available to reinforce his visual-auditory associations.

CASE NO. BEST COPY AVAILABLE CONFIDENTIAL Page

NAME ______________________ AGE 9-3 GRADE 4

ILLINOIS TEST OF PSYCHOLINGUISTIC ABILITIES

PROFILE OF ABILITIES:



*

Child's Mean Scaled Score 30.2 Child's Composite Psycholinguistic Age 7 - 7

Explanation of Scaled Scores:
A Mean Scaled Score of 36 represents Average composite functioning.

A Scaled Score of 36 on any sub-test represents Average functioning.

*Areas of disability are determined by comparing the child's Scaled Score in a particular area to his Mean Scaled Score as follows:

+6 to -6 points = Average Range
-7, -8, -9 points = Borderline Disability
-10 or more points = Specific Disability

____
Speech/Language Examiner

9/1/72
Developed & Produced by Special Educational Services Dept. Education Service Center, Region 1

CASE NO. C O N F I D E N T I A L

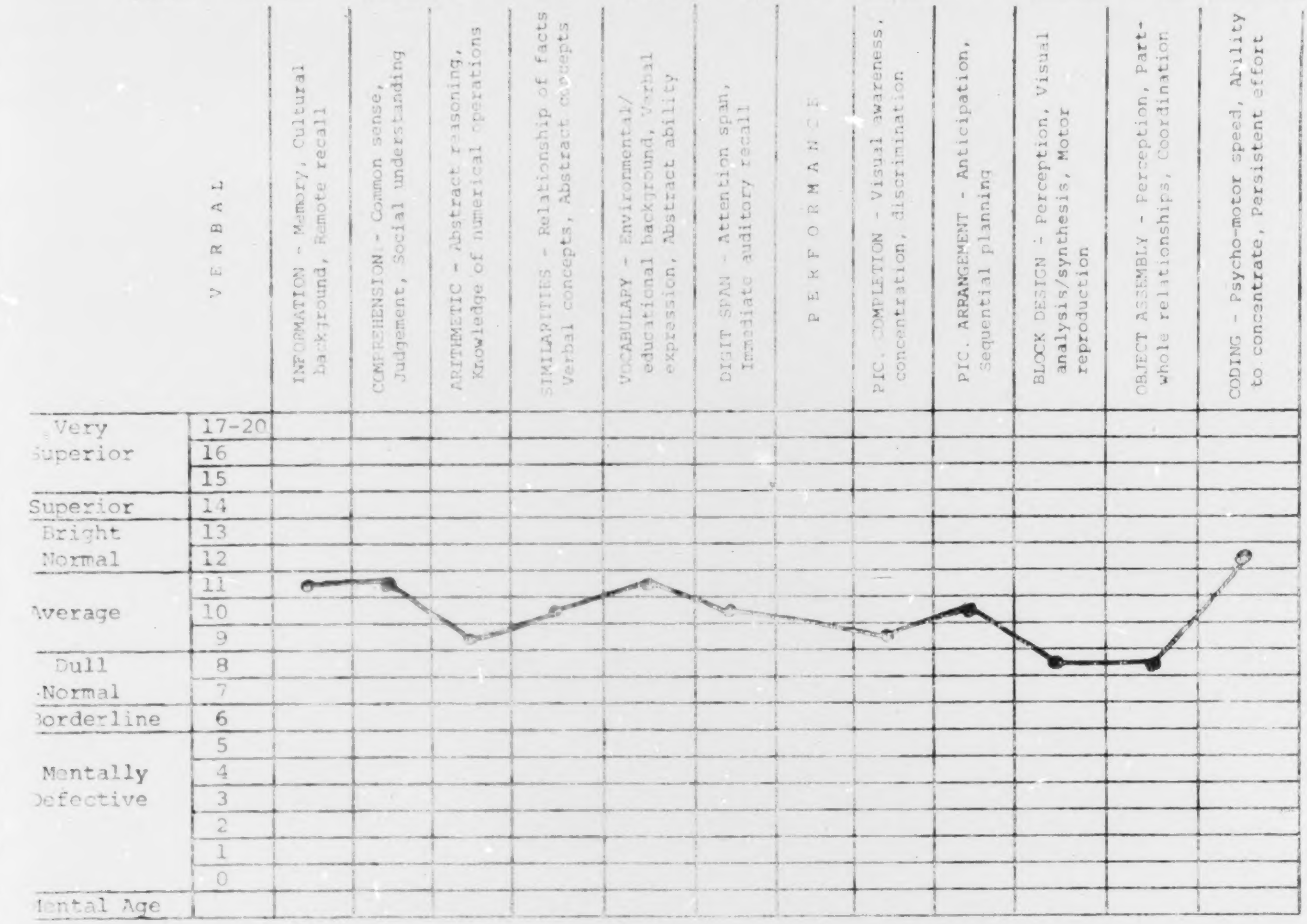
NAME ________ AGE 9 GRADE 4

TESTS ADMINISTERED AND STATISTICAL RESULTS

_____ Wechsler Intelligence Scale for Children

_____ Wechsler Adult Intelligence Scale

Verbal IQ 103 M.A. _____ %ile _____ Performance IQ 96 M.A. _____ %ile _____ TOTAL IQ 99 M.A. _____ %ile _____



_____ Bender-Gestalt: Koppitz Score _____ C.A. Mean Score _____ C.A. Range _____

_____ Peabody Picture Vocabulary Test: M.A. _____ I.Q. _____ Percentile _____

_____ Wide Range Achievement Test

Reading Grade _____ SS _____ %ile _____

Spelling Grade _____ SS _____ %ile _____

Arithmetic Grade _____ SS _____ %ile _____

_____ The Harris Tests of Lateral Dominance

Hand: ___ Right ___ Left ___ Incomplete

Eye: ___ Right ___ Left ___ Incomplete

Foot: ___ Right ___ Left ___ Incomplete

Knowledge of Left and Right

___ Confused ___ Hesitant ___ Normal

BEERY VMI AGE 5.0

SERIOUS V-M INTEGRATION DEFICIT

____
Examining Psychologist

Developed & Produced by Special Educational Services Dept. Education Service Center, Region 10

CASE NO.__________________

SPECIAL EDUCATIONAL SERVICES DEPARTMENT
EDUCATION SERVICE CENTER, REGION 10
P.O. Box 1300
Richardson, Texas 75080

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CONFIDENTIAL*

Date Logged

Date(s) of testing: 7-17-72

IDENTIFYING DATA: Project CHILD NORMAL Brown IPP

Name of Pupil [redacted] (First) ____ (Middle) [redacted] (Last)

Placement__________

Age 10-0 Date of Birth 7-15-62 Sex M

School Brown District Irving

Judith Samson
Special Educational Services Consultant

Jim George
Jim George, Director

Ertie Lou Rinehart
Ertie Lou Rinehart, Psychologist

Jo Hitt
Jo Hitt, Coordinator

____
Psychological Examiner

____
Educational Programmer

____
Speech/Language Examiner

*The information contained in this report is to be used with professional staff only.

INITIAL EDUCATIONAL PROGRAM   PROJECT CHILD

[redacted]
Normal
Brown Elementary

I. Testing Results (7-72) See enclosed graphs for subtest scatter.

WISC Verbal Scale 121   Performance Scale 110   Full Scale 117

Steven is a strong student, all of whose scores are normal or above on this intelligence test, with particular strength in the verbal areas. While none of his scores was significantly deficient, the examiner noted considerable anxiety that seemed to undercut the quality of his performance in certain areas. His auditory memory, closely associated with the ability to concentrate in a tension-free manner, was somewhat affected by his nervousness, as was his fine motor speed. He was rather compulsive about going over and over his copying work, which penalized him in time.

His verbal responses showed strong reasoning, factual information, comprehension of oral questions and of broad social experience, strong math concepts, and strong vocabulary. The Performance subtests showed more variation than the Verbal, but with no significant deficit. The variability may be the result of fluctuating anxiety over being tested, or may actually reflect some mild deficit in the visual motor area.

ITPA Psycholinguistic age: 10-1 plus

Steven's overall psycholinguistic development is above normal and commensurate with his bright-normal to superior intelligence. Although he has had an auditory-verbal deficit reflected in articulation distortions of the 'r', 'v', and 'th', the deficit has been corrected through speech therapy, and is no longer reflected in any auditory area. There is a slight, though not significant lag in verbal expression, which may be a residue of his shyness about communicating (common among children with speech defects). There is also a slight, though not significant lag, in sound blending which again may be a remnant of his former difficulties with processing sounds. While he is now able to synthesize sounds into meaningful wholes at the level anticipated for his age, he does it less well than would be expected for his mental age, thus suggesting that he receive some extra help in word analysis and phonics.

Steven's main strength is in visual memory, which may help him compensate rapidly, through strong word retention and recognition, for his earlier difficulty with sound associations and production.

The only area of significant deficit for Steven (at the 8 year 3 month level as compared with his mental age of 12-3) is in the area of visual closure. This lag may account for his lowered Performance scores on the WISC and the lower Beery VMI score (also at the 8 year level). While he is probably able to compensate for visual closure difficulties to a large extent through his strong verbal reasoning and his strong visual memory (thus figuring out words and figures from context and from past experience), it will slow his work on visual-motor tasks and make them unusually difficult for him. This may account for his chronic resistance to doing written work.

BEERY VMI: age equivalent 8-7

Steven showed many signs of stress during this task, whether from generalized tension or simply because the task is difficult for him (perhaps because of visual-closure difficulties). He did a great deal of heavy overworking on the designs with exaggerated black lines, revealing much anxiety and uncertainty. He made relatively small reproductions that became still smaller as the designs got more difficult--again a sign of anxiety, and an effort to control his production through constriction.

II. Educational Strengths

1) Steven's test scores indicate bright normal intellectual functioning with superior potential. He is also a high achiever in most areas, particularly in math. His verbal scores, in particular, show consistently superior abilities in reasoning, expressive skills, comprehension, factual information.

2) In the visual-motor area, although there are unevenness and discrepancies, Steven shows special ability in visual awareness, discrimination, and memory. What he lacks in speed and organization (integration and closure) in the visual-motor area, he can often compensate for through memory, reasoning, and certain verbal counterparts to mechanical skills.

3) Steven is motivated to achieve. Even though at times this motivation may be to his detriment, when he becomes overly anxious about his performance, it is still a basic tool for teaching him.

4) Steven's overall psycholinguistic development is above average for his age, as would be expected for his intellectual level. His strengths are fairly evenly distributed between auditory-vocal and visual-motor channels, and both representational and automatic levels show good strengths. He has made good progress in overcoming a speech articulation distortion, which indicates good ability to make compensatory use of his developmental skills.

III. Educational Weaknesses

1) Steven's only significant deficit in the testing pattern fell in visual closure. This involves his ability to identify common objects, shapes or patterns from an incomplete pattern. This

deficit inhibits his ability to see, read, and do visual-motor tasks rapidly. To some extent he is able to overcome this difficulty through high comprehension (ability to use past experience to fill in from context) and his good memory, but he still tends to have problems here.

2) Closely associated with his visual closure deficit is a lag in visual integration (4 years below mental age, 2 years below grade level). This is a visual-motor area made up of several sub-skills, including visual-closure, fine-motor coordination, figure-ground discrimination, spatial orientation, spatial relationship awareness, etc. Judging from other scores in the visual-motor area it is probable that Steven's difficulty in the performance area is not generalized to all the related skills but rather stem from difficulty with visual closure and from inhibiting anxiety about such tasks.

3) Steven's slight lag in verbal expression seems to reflect some inhibition about spontaneous speech rather than a lack of elaborative language or vocabulary development. His inhibition may stem largely from his history of speech articulation problems about which he may have been chronically self-conscious.

4) Associated with his difficulty in speech in previous years, is a residual lag, though not a significant one, in sound blending. He may need to continue a somewhat stepped-up training program in phonics and word analysis.

5) It is not possible for this examiner to know how extensive and chronic may be the emotional symptoms that she saw in Steven's test performance. Ongoing observation in the classroom will give a more valid evaluation of the degree of disruption to his functioning that may be caused by tension and anxiety. If this seems minimal to the teacher, the testing sampling may merely reflect a spurious reaction to the testing itself. But this should be carefully evaluated for the possibility of a need for a carefully planned supportive emotionally therapeutic educational plan.

IV. General Teaching Suggestions

1) Try to create and sustain a relaxed and emotionally supportive relationship with Steven, with frequent conversations and opportunities for him to express himself without feeling threatened. This will be advantageous to him from several aspects: reinforcement of his spontaneous expressive language usage, relaxing his tensions about performing well and pleasing his teacher, reinforcing his school-related motivation.

2) Neither channel need be avoided in teaching techniques and materials with Steven, but he should have some daily and weekly time for extra individual or small group training in phonics and word analysis as related to sound blending and visual closure.

3) Early in the semester when contracts and motivation charts are being created, Steven's should revolve around written assignments. At the same time that he is receiving training in visual closure and visual-motor speed, he should be given relatively short, nonthreatening written assignments in his various subjects, and be allowed to give supplemental reports and assignments orally. Increase his written sssignments by small, easy, sequential steps so that the increase is not so threatening and frustrating to him that he stops doing them.

Allow him ample margins for completing written work, and be innovative in helping him find shortcuts and efficient methods for doing rapid, accurate paper work. (e.g., once he has mastered concepts and processes in math, let him do fewer examples of each type problem, if he shows he can sustain his comprehension with less paper work.)

4) Watch for any tendency on his part to drop or distort sounds in his speech. Reinforce very accurate articulation on his part. This will be good training for his auditory awareness as well as for his expressive speech.

V. Specific Remedial Suggestions

1) For visual closure: Any technique that helps him fill in missing visual parts will be helpful to him. This can begin by using pictures or objects with hidden parts.

Flash-X and tachistoscope training, as well as controlled reader work daily is recommended.

Look for the embedded or hidden figure pictures found in many children's magazines such as Highlights, Jack and Jill, Children's Digest, etc. to multicopy and let him work on. Begin with very simple ones and increase until he is working on quite complex ones. Make this game-like to keep his interest.

Give him several short (10-15 minute) sessions weekly with puzzles that are sequentially developed, pegboards or other design boards on which designs are partially constructed and to be completed. Eight to nine year old connect-the-dot pictures can be used as training.

All linguistics training that helps him see the structural relation of the parts of the word to the whole word will be helpful to him.

The New Frostig Program for the Development of Visual Perception has numerous excellent exercises related to visual closure in the form of ditto masters. The section on figure-ground perception and spatial relationships will be most relevant to Steven's needs.

2) For visual-integration, several of the activities listed for visual closure will also be helpful here since the areas are so closely related. In addition, Steven needs training in the fine motor aspect of visual-motor integration, and can benefit from timed speed copying tasks (any material from the board or book to paper) then checked for accuracy. Such exercises should be given regularly (at least twice weekly) and a record should be kept so that he can see his progress graphed in some manner. Equivalent exercises should be given so that his weekly progress is meaningful.

Teaching him to type at home or at school can be an excellent means of increasing fine motor speed while increasing visual-motor integrational skills.

Give him time limits (based reasonably on his normal production rate, and then increased to require him to stretch slightly) for classroom activities that lend themselves to timing. Reinforce him for gains, and keep a record (he can keep it himself).

Give him penmanship exercises from any available materials, including the Michigan cursive writing program. Help him make the transition from pure exercises to compositional skills by examining and scoring penmanship (in a constructive, positive way) as well as content and organization in his written work. If there is extreme discrepancy, separate scores can be given.

3) While verbal expression is a little low for Steven more probably because of emotional inhibition than actual skill deficit, it would be worthwhile to make a conscious effort to increase his self-confidence through increased opportunity to express himself and to be rewarded for it (by praise, attentiveness and interest on the part of his listeners, and by increased social success). Give him frequent opportunities to tell about or describe things that he sees, does, or feels. If he builds or creates any project, have him describe how he did it verbally. Discuss his independent reading with him weekly, and try to encourage him to give particularly interesting reports to the whole class. Look for some skill that he can teach to the whole class.

4) Sound blending will simply involve a continuation of some aspects of the speech therapy he has had, or a simple intensification of the phonics training that are a normal part of his reading instruction. Experiment first with the Hegge, Kirk and Kirk Remedial Reading Drills to see to what extent he may need ongoing help with sound integration in his word attack methods.

CASE NO. **BEST COPY AVAILABLE** CONFIDENTIAL Page 2

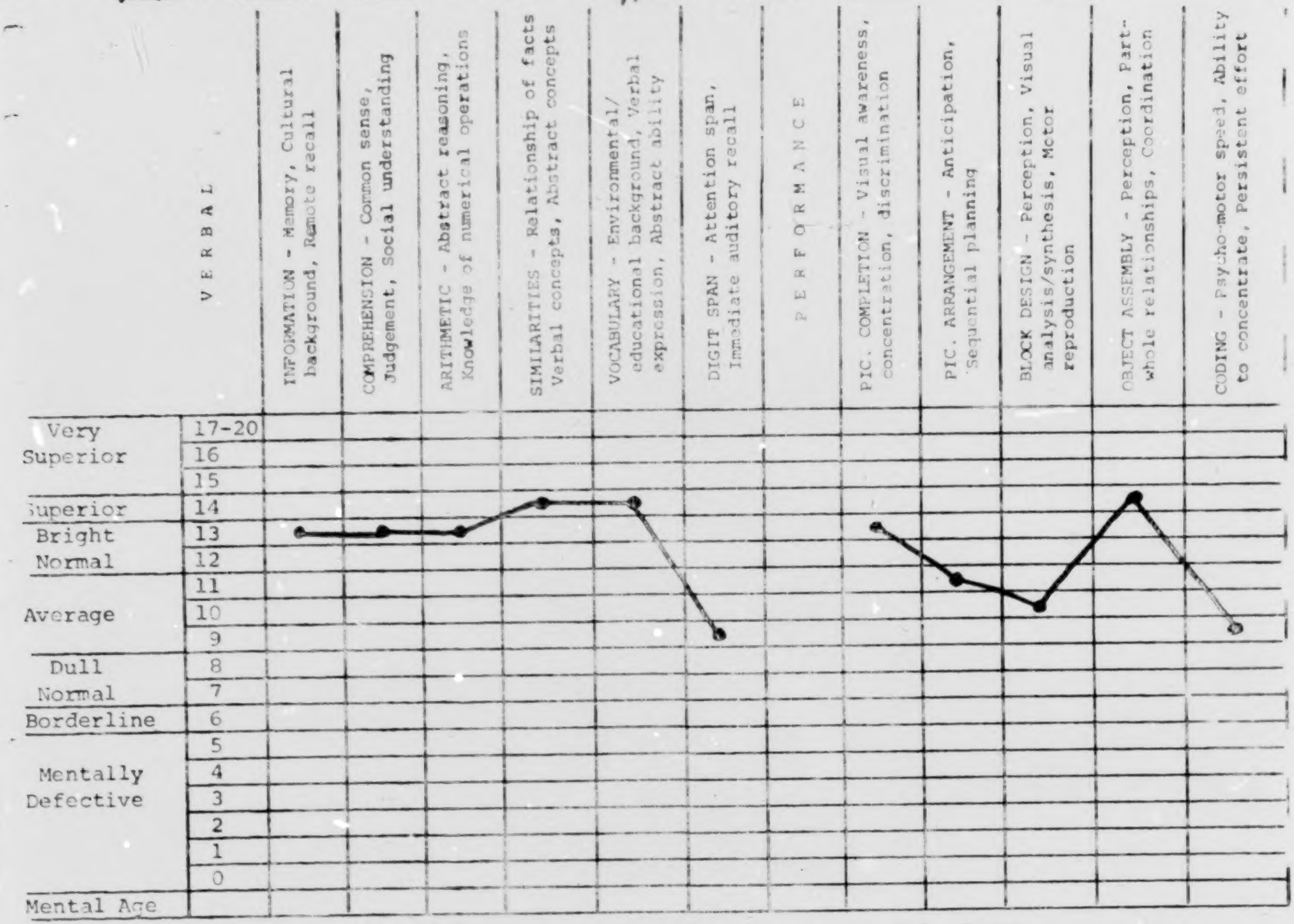
NAME ________ AGE 10 GRADE 4

TESTS ADMINISTERED AND STATISTICAL RESULTS

________ Wechsler Intelligence Scale for Children

________ Wechsler Adult Intelligence Scale

Verbal IQ 121 M.A. ____ %ile ____ Performance IQ 110 M.A. ____ %ile ____ TOTAL IQ 117 M.A. ____ %ile ____



________ Bender-Gestalt: Koppitz Score ____ C.A. Mean Score ____ C.A. Range ________

________ Peabody Picture Vocabulary Test: M.A. ____ I.Q. ____ Percentile ____

________ Wide Range Achievement Test

Reading Grade ______ SS ______ %ile ______

Spelling Grade ______ SS ______ %ile ______

Arithmetic Grade ______ SS ______ %ile ______

________ The Harris Tests of Lateral Dominance

Hand: ____ Right ____ Left ____ Incomplete

Eye: ____ Right ____ Left ____ Incomplete

Foot: ____ Right ____ Left ____ Incomplete

Knowledge of Left and Right

____ Confused ____ Hesitant ____ Normal

BEERY VMI AGE 8-7

____
Examining Psychologist

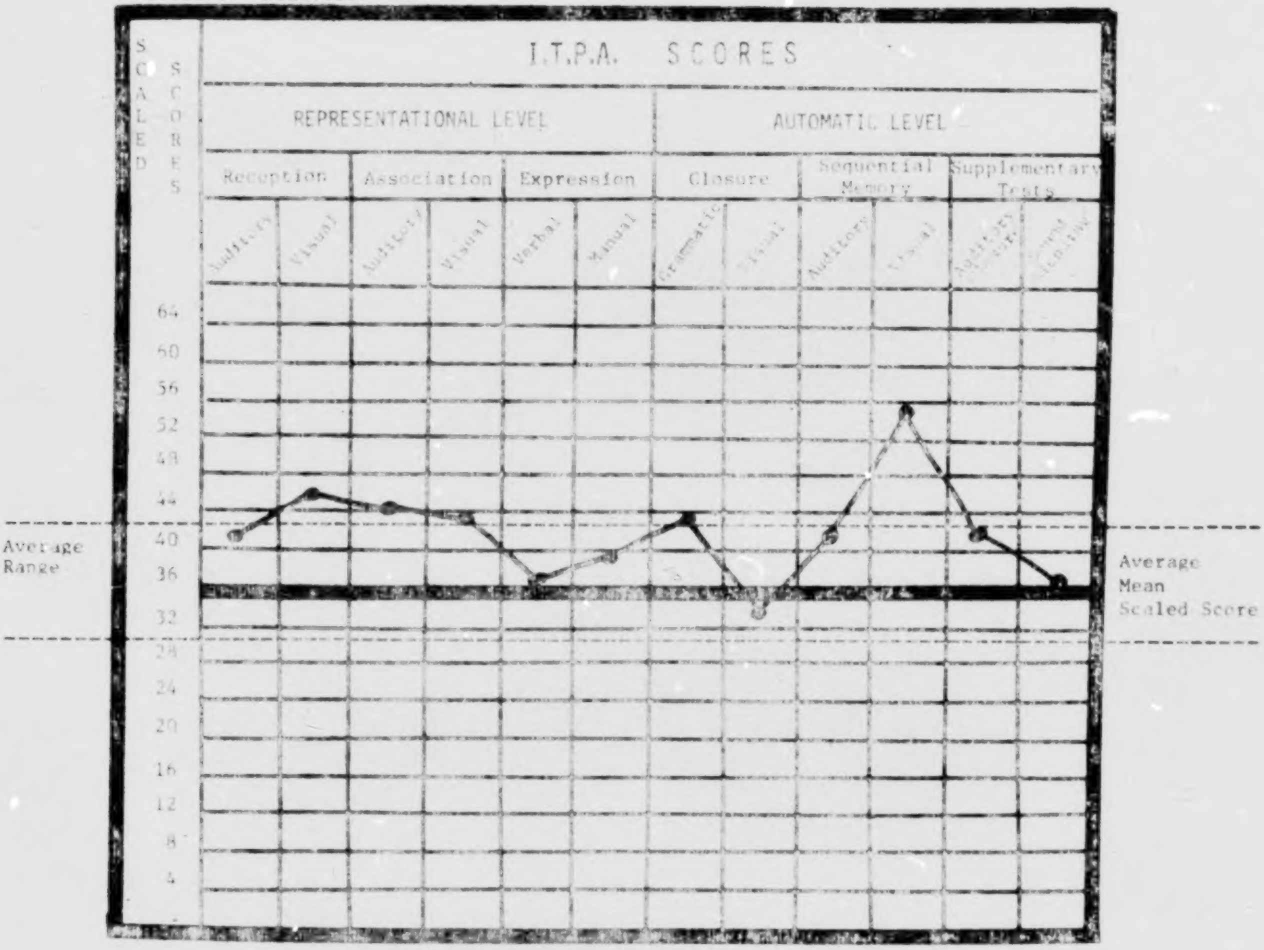
CASE NO. CONFIDENTIAL Page

BEST COPY AVAILABLE

NAME ______________________ AGE __________ GRADE ______

ILLINOIS TEST OF PSYCHOLINGUISTIC ABILITIES

PROFILE OF ABILITIES:



*

Child's Mean Scaled Score *41.5* Child's Composite Psycholinguistic Age *10-1+*

Explanation of Scaled Scores:
A Mean Scaled Score of 36 represents Average composite functioning.

A Scaled Score of 36 on any sub-test represents Average functioning.

*Areas of disability are determined by comparing the child's Scaled Score in a particular area to his Mean Scaled Score as follows:

+6 to -6 points = Average Range
-7, -8, -9 points = Borderline Disability
-10 or more points = Specific Disability

Speech/Language Examiner

9/1/72
Developed & Produced by Special Educational Services Dept. Education Service Center, Region 10

EXPLANATION OF THE ABILITIES ASSESSED BY THE SUBTESTS OF THE ITPA

REPRESENTATIONAL LEVEL

Subtests at this level involve the use of meaningful symbols (verbal or visual) in the process of acquiring, organizing and transmitting verbal or visual concepts.

Subtest		Order of Strengths 1=Greatest; 10=Least
Auditory Reception	(the ability to attend to and derive meaning from verbally presented material)	5
Visual Reception	(the ability to attend to and derive meaning from visual stimuli (pictures)	2
Auditory Association	(the ability to relate or organize concepts presented orally)	3
Visual Association	(the ability to relate or organize concepts presented visually)	4
Verbal Expression	(the ability of the child to express ideas vocally)	7
Manual Expression	(the ability to express ideas manually (gestures/pantomime)	6

AUTOMATIC LEVEL

Subtests at this level involve involuntary but well organized automatic processes as utilized with non-meaningful material.

Grammatic Closure	(the ability to make use of the redundancies of oral language in acquiring automatic habits for handling syntax and grammatic inflections)	4
Visual Closure	(the ability to identify a common object from an incomplete visual presentation)	8
Auditory Memory	(the ability to attend to, remember, and reproduce sequences of digits increasing in length from two to eight digits)	5
Visual Memory	(the ability to attend to, remember, and reproduce sequences of non-meaningful figures)	1
Supplementary Tests		
Auditory Closure	(the ability to fill in missing parts which were deleted in auditory presentation and to produce a complete word)	5
Sound Blending	(the ability to reproduce the separate parts of a word and produce an integrated whole)	7

Developed & Produced by Special Educational Services Dept. Education Service Center, Region 10

11/71

Visual channel slightly superior

PROJECT CHILD - INDIVIDUALLY PRESCRIBED PROGRAM

Educational Objectives and Materials

NAME ______________________________ DATE ______________

Auditory ______________________________

Objective: ______________________________

Materials:

☐ Sound Order Sense
☐ Michigan Language Program
☐ Listening I   Listening II
☐ Word Attack and Comprehension
☐ Reading Words
☐ D_1 Writing Words
☐ Hegge, Kirk & Kirk, Remedial Reading Drills
☐ Other: ______________________________

Visual ______________________________

Objective: ______________________________

Materials:

☐ Flash X ____________
☐ Sullivan Math - Book ____________
☐ Learning Skills Series - Book ____________
☐ Elementary Math - Book ____________
☐ Introduction to Multiplication
☐ Reading for Concepts (A,B,C,D,E)
☐ Merrill Linguistics - Level ____________
☐ Let's Read - Level ____________
☐ Barnell Loft - Level ____________
☐ MacMillan - Level ____________
☐ Other: ____________

Michigan Language Program
Tracking:
☐ a. Symbol ☐ d. Primary
☐ b. Visual ☐ e. Number
☐ c. Word ☐ f. Cues

☐ Cursive Writing
Performance Tasks
☐ Single Words
☐ Words in Context

☐ Basal Texts
___Speller ___Reader
___Math

Both ______________________________

☐ Systems 80 - Kit ____________
☐ Cassette Learning Program ____________
☐ Audio Flash Recorder ____________

Other Materials Used: ______________________________

PROGRAM PLACEMENT (continued)

Teacher, with the guidance of educational diagnostician will formulate educational objectives for each learner.

With the aid of prescriptions such as those immediately preceding, the teacher and diagnostician formulate specific educational objectives for each child. Some examples of these objectives are listed below:

1. Given three short incomplete paragraphs, each containing three similar compound words one of which will complete each paragraph, ______ ______ will select the correct word with 100% accuracy.
2. Given the basal spelling list for the week, ______ ______ will attack each word phonetically and identify the beginning sound, the vowel sound(s) and the ending sound of each word. He should be able to pronounce 80% of these words correctly.
3. Given a demonstration in geometry on triangles and a sheet of drawings. ______ ______ will be able to identify the right triangles on the sheet with 100% accuracy.

PROGRAM DEVELOPMENT

Learner will be placed at level of actual functioning as determined by initial evaluation.

In the Individually Prescribed Programs intervention model the initial placement level of any student within his instructional program will, like most other factors, be determined by the educational prescription and objectives for that particular student. The initial placement level will approximate as closely as possible the actual functioning level of the child. Functioning level will b determined by a student's achievement record and other available information. For example, one student may be placed precisely in materials at the grade level difficulty where his achievement tests indicate he is working; another student may be placed two grade levels below the point indicated by achievement tests because immediate significant success is thought to be a more important factor for that child; yet a third student may be placed in materials somewhat more difficult than is indicated appropriate by achievement tests so that the student will meet the challenge required to involve him in the program. All of these are possibilities; however, the general rules will be to place the student at precisely the level indicated by the achievement tests. Variations from this rule will require justifications.

Classroom is organized in terms of individual learner schedules.

The organization of Individually Prescribed Programs classrooms will vary according to the educational programs written for each student within the various classrooms. Thus, while one teacher may make extensive use of certain materials, such as the Let's Read series, another teacher

PROGRAM DEVELOPMENT (continued)

may use the same materials quite sparingly. The same consideration applies to time and student grouping; whereas one teacher may organize most of her daily schedule into modules of small group instruction, another teacher may be required because of the dissimilarity of student programs to provide a classroom organization which is based upon individual scheduling. Obviously the amount of time required by one set of materials or one grouping pattern limits the amount of time available to spend in another set of materials or grouping pattern. In any case the teacher will be required to organize the classroom to provide the most efficient means of implementing the educational programs prepared for her students.

Learner will be encouraged to develop self-initiation and self-direction of learning. Will work independently and in small groups.

As its name implies, the Individually Prescribed Programs intervention model is based upon individual programming for each student. This does not appear to be the basis for the regular classrooms of which these students were a part in their first three years of school experience. Thus they will need to establish new patterns of work, becoming more adept in individual or small group activities which are either wholly or largely self directed.

The development of such work habits and behavior will likely be a major concern of the teacher as she attempts to implement the individual programs. An equally difficult task for the teacher will be the adaptation of materials prepared for large group, teacher directed learning to activities in which the teacher exerts less direction and the student works independently of his peers.

Recycling possible in any material or material selected by teacher or diagnostician.

One strength of the Individually Prescribed Programs model is the multiplicity of instructional materials available for the teacher's use. The model is based on the assumption that each child who doesn't achieve to his potential has specific handicaps, that these handicaps can be determined and that an educational program which will allow the child to overcome these handicaps can be formulated.

However, admission is made that, for reasons not always discernible, a child's completion of the prescribed program does not insure the elimination of a disability or the acquisition of a skill. Therefore, the teacher is provided sufficient material to recycle a student through the development of a particular skill without requiring him to suffer the boredom which results from reading the same paragraphs and answering the same questions repeatedly.

This, of course, requires the teacher and diagnostician to study carefully each child's profile, determine a program for him, establish criteria to measure his success, apply those criteria to his efforts, and decide whether recycling is necessary.

PROGRAM DEVELOPMENT (continued)

Learner proceeds through an unlimited variety of materials at the discretion of diagnostician and/or teacher. Provision is made for daily evaluation and possible adjustment of materials and/or schedule.

The number and kind of materials included in any student's educational program in this intervention model is determined by the student's profile, requiring the teacner and diagnostician to be thoroughly familiar with each student in the IPP classroom, the materials available for use with that student, and how these materials relate to the needs of tne various students.

To prevent "forgetting" a student after he is once place in his educational program the teacher and diagnostician must frequently review that student's progress against the objectives established for him. Such a review is required weekly and may be done daily at the discretion of the teacher.

MATERIALS

Unlimited

Each classroom in the Individually Prescribed Programs intervention model is equipped with a basic set of materials. Although these materials are numerous and varied, the nature of this intervention model dictates that remediation not be limited to any set of materials. Consequently the attached listing of materials should be considered the starting point for this model. Additional resources available to the teachers include teacher made materials, local district materials, and materials available for the Special Education Instructional Materials Library of Education Service Center, Region 10.

(Although the basic philosophy of the IPP intervention model embraces the concept of unlimited material selection, imperative research considerations preclude use of those materials basic to the PI and APSL intervention models.)

Revised 9-22-72

MATERIALS AVAILABLE IN
INDIVIDUALLY PRESCRIBED PROGRAM CLASSROOMS

Flash - X tachistoscopes

Teacher's Guide for Flash X

Sound/Order/Sense Level 1

- Pupil response books 1-1
- Pupil response books 1-2

Sound/Order/Sense Level 11

- Pupil response books 2-1
- Pupil response books 2-2

Basic Goals in Spelling, Levels 1, 2, 3, 4, Kottmeyer

CASSETTE LEARNING PROGRAMS:

- Read-Along Tales
- Mystery Stories
- Sport Stories
- Beginning Multiplication
- Mastering Multiplication
- The Story of Dinosaurs and Fossils
- The Beginning of America

McGraw Hill - Elementary Math

- Text-Workbooks, Grade 1
- Teacher's Edition, Grade 1
- Text-Workbooks, Grade 2
- Teacher's Edition, Grade 2
- Text, Grade 3
- Teacher's Edition, Grade 3
- Text-Workbooks,Grade 3
- Texts, Grade 4
- Teacher's Edition, Grade 4

MATERIALS IN I.P.P. CLASSROOMS

McGRAW-HILL - ELEMENTARY MATH (cont'd.)

- Workbooks
- Flash - X discs (assorted)

MICHIGAN LANGUAGE PROGRAM:

- Child Management (Paperbound)
- Symbol tracking (reusable)
- Visual tracking
- Word tracking
- Primary tracking
- Cues and Signals
- Number Tracking I
- Multiple Tracking II
- Cursive Writing
- Book 2 - Letters (reusable)
- Book 3 - Letters (reusable)
- Book 4 - Letters (reusable)
- Book 5 - Words (reusable)
- Word Attack
- Performance Tasks: Single Words
- Performance Tasks: Words in Context
- Book D-1 (spelling)
- Book I - Words (reusable) - Listening

MATERIALS IN I.P.P. CLASSROOMS

MICHIGAN LANGUAGE PROGRAM (Cont'd)

Book II - Sentences (reusable)
Teacher's Manual
Teacher's Script

EQUIPMENT:

Tape Recorders and/or Players
Overhead projector
Prima filmstrips projector
Prima filmstrip previewers
Audio flashcard reader
Headset w/boom microphone
Record player (califone)
Systems 80 audiovisual unit
Headsets
Junction Box
Cassette tapes
V film kit
Refill Kit
Single panel pegboard screens
A-v table
4-drawer files
tables 6' x 32'

READING FOR CONCEPTS:

Levels A, B, C, D, E, F, H

SYSTEMS 80:

Test tabs
Student Record cards
Student Record books
Phonics CC-HH and Reading Words in Context Levels C thru K

MATERIALS IN I.P.P. CLASSROOMS

MERRILL LINGUISTICS:

Hard Back Readers Levels 1, 2, 3, and 4
TE Readers 1, 2, 3, 4
Skills Reader Workbook 1, 2, 3, 4
Drillkit (Ditto Masters)

CLARENCE BARNHART:

Let's Read, Part 1, 2, 3
Let's Look at 1, 2, 3
Let's Read, Part 4, 5, 6, 7, 8, 9
Let's Look at 4, 5, 6, 7, 8, 9

Hegge, Kirk & Kirk, Remedial Reading Drills

Benton Math (Levels 1-6)

Programmed Audio Flash Cards - Phonics II

Blank Audio-Flash Cards

Dr. Spello (Workbooks)

Alphabet 68, Handwriting (Workbooks)

Language Patterns, Continental Press (Workbooks - Levels 1-6)

Specific Skills, Barnell Loft (Levels A-E)

Pilot Library Kit (1c) SRA

On My Own in Spelling - Cassettes (Level 3)

Morgan Bay Mysteries, Field Enterprises

Phonics is Fun, Modern Curriculum Press (Level 1-3)

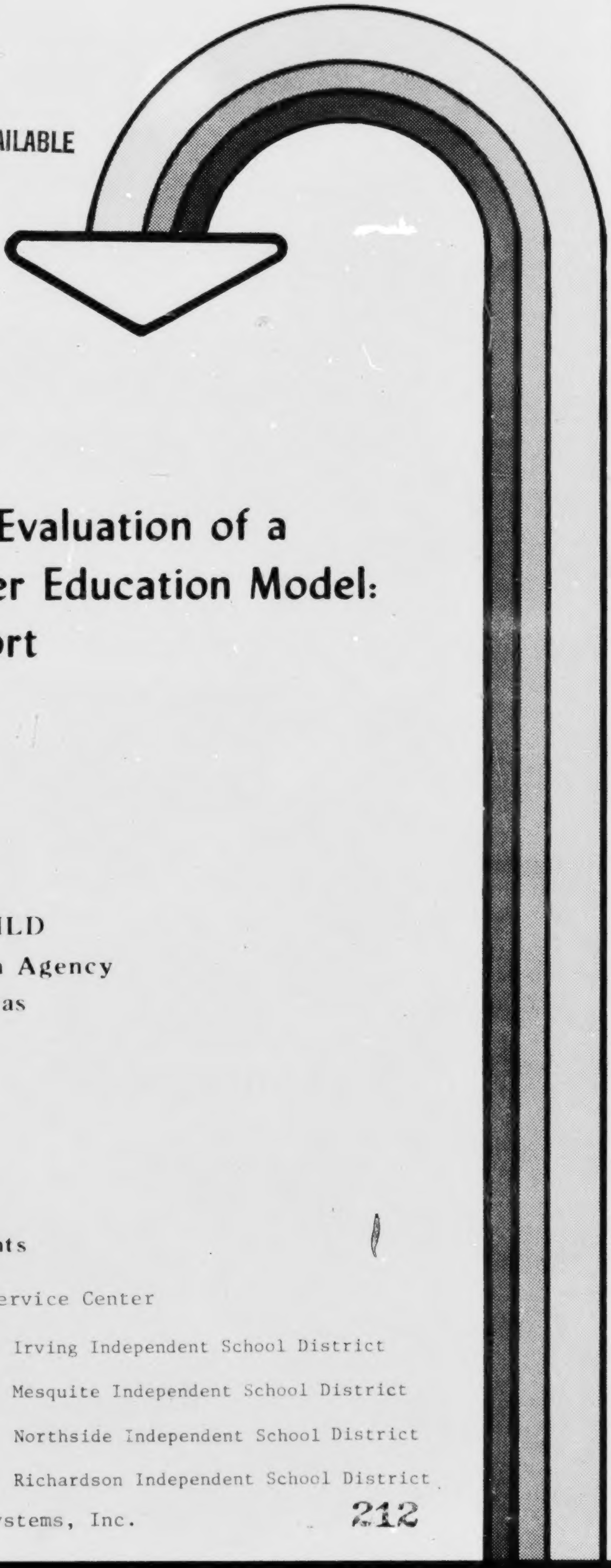
Kenworthy Flip Charts

Decoding for Reading, McMillan

Color Cued Paper, DLM

Auditory Perception (Primary) (Cassette Tapes)

Auditory Perception (Intermediate) (Cassette Tapes)



The Development and Evaluation of a Competency Based Teacher Education Model: Final Report

Project CHILD
Texas Education Agency
Austin, Texas

Participants

Region 10 Education Service Center

East Texas State University
Dallas Independent School District
Duncanville Independent School District
Hurst-Euless-Bedford Independent School District
Irving Independent School District
Mesquite Independent School District
Northside Independent School District
Richardson Independent School District

EPIC Diversified Systems, Inc.

THE DEVELOPMENT
AND
EVALUATION
OF A
COMPETENCY BASED
TEACHER EDUCATION MODEL

PROJECT CHILD

Texas Education Agency
Austin, Texas

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CHAPTER I

INTRODUCTION

During the 1971-72 project year of Project CHILD, the Staff Development Component (in cooperation with East Texas State University) delineated a curriculum for teachers of language handicapped children. The curriculum was developed on a performance basis which allowed the teacher participants to proceed through established learning experiences at his/her own pace.

More specifically, the curriculum was organized around twelve discrete packages with each package containing the following components:

1. Pre-assessment
2. Performance objectives
3. Learning experiences
4. Self-evaluation
5. Proficiency assessment

The sequence for completing the established packages, first of all, provided the teacher with a general understanding of the language disabled child followed by the development of specific skills that are necessary when working with children who are language disabled.

Below is the sequence established for completing the packages and in turn experiencing the adopted curriculum:

1. Orientation to a Performance Based Curriculum
2. Learning Theories
3. Characteristics of the Language Disabled Child
4. Human Engineering Applicable to the Classroom
5. Educational Assessment Techniques
6. Psychological and Physiological Assessment Techniques
7. Development of Measurable Objectives
8. General Methodologies
9. Teacher Self-Appraisal
10. Student Monitoring Techniques
11. Program Planning for the Language Disabled Child
12. Components of Accountability

During the summer of 1972, the performance-based packages were completed by an experimental group of teachers. These teachers were labeled as experimental because the traditional curriculum usually provides the teacher with an adequate understanding of the language disabled child, but it does not provide the teacher with the opportunity to develop the diagnostic, teaching, and evaluation skills necessary for working with children with a language handicap.

Consequently, during the 1972-73 project year of Project CHILD, the Staff Development Component intended to answer two questions:

1. Do teachers (experimental group) who have experienced a performance-based staff development program in working with language disabled children demonstrate desired teaching behaviors more frequently than teachers (control group) who have not experienced a performance-based staff development program in working with language disabled children?
2. Do the desired teaching behaviors cause children to experience more school success than children in situations where these behaviors are observed to a lesser degree?

Chapter II describes the procedures that were utilized to obtain information regarding the above questions.

CHAPTER II

PROCEDURES

In order to answer the questions posed in Chapter I, a set of documentation and evaluation procedures were implemented from May, 1972 to June, 1973.

Establishment of Samples

The number of teachers completing the performance-based staff development program was seventeen, including three regular classroom teachers and fourteen resource teachers. These teachers composed the experimental group for the study.

A comparable control group of teachers having had no previous participation in a performance-based staff development program was selected including three regular teachers and twenty resource teachers.

The experimental and control teachers were matched according to (1) years of teaching experience, and (2) having a valid Texas elementary teaching certificate.

In summary, it might be helpful to point out that the basic difference between a resource teacher and a regular classroom teacher is that the resource teacher works with language disabled children apart from the regular classroom, whereas the regular classroom teacher works with language disabled children within the regular classroom setting.

The student sample consisted of a range of students in grades 1-6 who had been assigned to either an experimental or a control teacher for the 1972-73 school year.

Development of Monitoring Form

In order to answer the first question concerning whether or not an observed difference in teaching behavior existed between the experimental and control teachers during the 1972-73 school year, a monitoring form was established.

The monitoring form was developed through the basic procedure of having each package writer describe those behaviors or activities that should be observed as a result of completing packages for which he/she was responsible for developing.

Each specific behavior or activity in the monitoring form was then coded to that package within which it was emphasized.

Consequently, not only would the monitoring form provide information regarding the frequency of desired behaviors and activities displayed by the experimental and control teachers, but the same information could also be used to determine which packages tended to be effective or ineffective with respect to bringing about desired behaviors or activities in the regular classroom or resource room. (See Appendix A for a copy of the monitoring systems manual.)

Training of the Monitors

During September, 1973, four people were selected to be monitors in the study. All the monitors had previous teaching experience. The initial training procedures consisted of critiquing the monitoring form to assure that the monitors had a clear understanding of the questions which were to be asked and the behaviors/activities they were to observe.

The final aspect of the training consisted of establishing a high degree of consistency between the monitors with respect to classroom observations.

The required ratio of "number of agree answers" to "number of questions that could be answered" was a ratio of 95:100.

At the conclusion of the training session, ground rules had been established among the monitors for the purpose of clarifying some of the questions on the monitoring form which in turn would assure that a high degree of reliability would exist among the monitors throughout the school year.

Collection of Teacher and Student Information

A. Teacher Information

Throughout the school year, eight monitoring visits were conducted with all teachers participating in the study. There was an attempt to randomly match the teachers with the monitors for each visit in order to decrease the probability of bias that might occur if a given monitor conducted all eight visits with the same teacher(s).

Also, throughout the school year, reliability checks were periodically conducted in order to assure that consistency was being maintained among the monitors. In addition, meetings were held after each monitoring visit with the monitors and the developers of the performance-based packages for the purpose of discussing and documenting observations that were made which could bias the monitoring information. This information would in turn be used when interpreting the results of the monitoring visits at the end of the school year.

Finally, the attitudes of the teachers were assessed three times during the school year utilizing a semantic differential technique. The concepts that were measured with respect to attitudes held by the participating teachers were:

1. Myself
2. Reading Program
3. Students—Language Handicapped

(See Appendix B for a copy of the instrument.)

B. Student Information

Cognitive and affective measurement instruments were administered to the students three times during the school year: pre, mid, and post. The following cognitive areas were measured by the Metropolitan Achievement Test:

1. Word knowledge
2. Reading
3. Total reading
4. Language
5. Spelling
6. Mathematics computation
7. Mathematics concepts
8. Mathematics problem-solving
9. Total mathematics

Student attitudes were assessed toward the following concepts utilizing a semantic differential technique:

1. Myself
2. School
3. Reading

(See Appendix C for a copy of the instrument.)

Chapter III describes the statistical techniques that were used to analyze the collected data.

CHAPTER III

STATISTICAL ANALYSES

A. Teacher Information Analyses

The teacher monitoring information was analyzed in such a way to provide answers to the following questions:

1. Do experimental resource teachers demonstrate desired behaviors significantly more frequently than the control resource teachers?
2. Do experimental regular teachers demonstrate desired behaviors significantly more frequently than the control regular teachers?
3. Do the resource teachers of the experimental group demonstrate the desired behaviors significantly more frequently than the regular teachers of the experimental group?

More specifically, the analyses were conducted utilizing the chi-square technique for the following comparisons:

1. Experimental resource teachers versus control resource teachers for each set of monitoring information (eight sets) on question 1 in the Monitoring System Manual.

2. Experimental resource teachers versus control resource teachers comparing the first four sets of monitoring information with the last four sets for each question.

3. Experimental regular teachers versus control regular teachers comparing the first four sets of monitoring information with the last four sets for each question.

4. Experimental resource teachers versus control resource teachers across all eight sets of monitoring information for each question in the Monitoring System Manual.

5. Experimental regular teachers versus control regular teachers across all eight sets of monitoring information for each question in the Monitoring System Manual.

6. Combined experimental teachers versus combined control teachers across all eight sets of monitoring information for each question.

The teacher attitude information was analyzed utilizing a 2 X 3 analysis of variance technique with the rows representing the type of teacher (experimental or control) and the columns representing time of measurement (pre, mid, and post.) An analysis of variance was carried out for each concept that was measured by the semantic differential.

B. Student Information

The collected student information was analyzed in such a way to provide answers to the following questions:

1. Do students taught by experimental resource teachers show more growth in achievement and attitudes than students taught by control resource teachers?
2. Do students taught by experimental regular teachers show more growth in achievement and attitudes than students taught by control regular teachers?

Specifically, the statistical technique utilized was a 2 X 3 analysis of variance with the rows representing type of student (experimental or control) and the columns representing time of testing (pre, mid, and post). Statistical tests were conducted on each of the nine sets of cognitive data and each of the three sets of affective data.

Chapter IV describes the results that were obtained from the statistical analyses.

CHAPTER IV

STATISTICAL RESULTS

Teacher Monitoring Results

The results of this section are organized according to each of the six analyses described in Chapter III. More specifically, the calculated chi-square tests for the experimental and control resource and classroom teachers are reported, along with levels of significance.

The observed frequencies collected for each question on the monitoring form throughout the eight monitoring visits are not specified in this report. However, the frequencies are available in the office of Project CHILD, Staff Development Component, Education Service Center, Region 10.

Analysis #1: Experimental Resource Teachers versus Control Resource Teachers for each set of Monitoring Information (eight sets) on Question #1 in the Monitoring System Manual

A. Results

Table 1 displays the chi-square results for experimental and control resource teachers from information collected on each of the eight monitoring visits to the question: "During the period of observation, what learning theory does the teacher intend to use in his/her instructional activities:

__________ Skinner

__________ Gestalt

__________ Other

TABLE 1

CHI SQUARE RESULTS FOR INTENDED LEARNING THEORY QUESTION

Monitoring Visit	Chi-square value	Significance Level
1	2.54	Non-significant
2	.11	Non-significant
3	3.75	Non-significant
4	1.30	Non-significant
5	3.17	Non-significant
6	5.95	$p < .05$*
7	4.52	$p < .05$*
8	5.09	$p < .05$*

* $\chi^2_{(.05,1)} = 3.84$

For all the chi-square tests, the "Gestalt" frequencies were combined with the "Other" frequencies in order to have adequate cell frequencies for computing the chi-square statistic.

From the results, it can be observed that significant chi-square tests occurred for visits #6 through #8.

For those tests which were significant, the experimental teachers expressed the greatest use of Skinner, whereas the control resource teachers had a greater expression of "Other" learning theories.

B. Conclusions

Based upon the results, it can be concluded that there was a significantly greater intended use of Skinner learning theory by the experimental resource teachers than the control resource teachers.

Analysis #2: Experimental Resource Teachers versus Control Resource Teachers Comparing the First Four Sets of Monitoring Information with the Last Four Sets for each Question

A. Results

Table 2 displays the chi-square values for experimental and control resource teachers for each question asked during the monitoring visits. The specific questions and page numbers are cited from the Monitoring System Manual. (See Appendix A)

It should be noted that in some instances categories of observed frequencies were combined in order to obtain adequate cell frequencies for the computation of the chi-square statistic.

The results show more significant chi-square values occurring during the last four monitoring visits than the first four monitoring visits.

B. Conclusions

Based upon the statistical results, the experimental resource teachers generally showed more desired behaviors and/or activities than the control teachers in the following areas:

1. Utilization of performance-based instruction in the teaching of language disabled children.
2. Development of measurable objectives.
3. Charting and/or recording the progress of language disabled children.
4. Program planning for selected language disabled children.

However, during the last four monitoring visits, the control resource teachers showed more desirable behaviors and/or activities than the experimental resource teachers in the areas of:

1. Systematic procedures for recording teaching behavior.
2. Providing examples of systematic observation systems.
3. Having an educational program for every language disabled child in his/her classroom.

TABLE 2

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
1	1	1.04	Non-significant	23.51	$P<.05\ X^2_{(.05,1)} = 3.84$
1	2	16.84	$P<.05\ X^2_{(.05,1)} = 3.84$	31.26	$P<.05\ X^2_{(.05,1)} = 3.84$
2	2	.59	Non-significant	.30	Non-significant
1	3	.03	Non-significant	.95	Non-significant
1.1	4	.00	Non-significant	3.50	Non-significant
1.2	4	.83	Non-significant	6.51	$P<.05\ X^2_{(.05,1)} = 3.84$
2.1	4	.66	Non-significant	7.43	$P<.05\ X^2_{(.05,1)} = 3.84$
2.2	4	.01	Non-significant	4.52	$P<.05\ X^2_{(.05,1)} = 3.84$

TABLE 2

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
3.1	4	5.46	$P < .05\ X^2_{(.05,1)} = 3.84$	17.08	$P < .05\ X^2_{(.05,1)} = 3.84$
3.2	4	2.69	Non-significant	21.11	$P < .05\ X^2_{(.05,1)} = 3.84$
4.1	4	.02	Non-significant	8.75	$P < .05\ X^2_{(.05,1)} = 3.84$
4.2	4	.04	Non-significant	2.35	Non-significant
5.1	4	27.31	$P < .05\ X^2_{(.05,1)} = 3.84$	7.86	$P < .05\ X^2_{(.05,1)} = 3.84$
5.2	4	38.26	$P < .05\ X^2_{(.05,1)} = 3.84$	9.55	$P < .05\ X^2_{(.05,1)} = 3.84$
1	5	47.05	$P < .05\ X^2_{(.05,1)} = 3.84$	2.56	Non-significant
1	6	16.75	$P < .05\ X^2_{(.05,1)} = 3.84$	.19	Non-significant

TABLE 2

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
1	7	1.10	Non-significant	.22	Non-significant
1	8	14.59	$P < .05\ X^2_{(.05,1)} = 3.84$	.21	Non-sifnificant
2	8	1.57	Non-significant	.02	Non-significant
1	9	1.49	Non-significant	.09	Non-significant
1	10	.03	Non-significant	1.30	Non-significant
2	10	2.32	Non-significant	.66	Non-significant
3	10	.05	Non-significant	7.47	$P < .05\ X^2_{(.05,1)} = 3.84$
4	10	.12	Non-significant	.07	Non-significant

TABLE 2

CHI- SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
5	10	.34	Non-significant	1.19	Non-significant
6	10	.00	Non-significant	.22	Non-significant
7	10	1.32	Non-significant	.64	Non-significant
8	10	.05	Non-significant	1.05	Non-significant
9	10	.39	Non-significant	2.59	Non-significant
1	11	.53	Non-significant	1.55	Non-significant
1	12	.58	Non-significant	5.47	$P < .05\ X^2_{(.05,1)} = 3.84$
1	13	.01	Non-significant	.00	Non-significant

TABLE 2

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
1	14	1.87	Non-significant	.00	Non-significant
1	15	.25	Non-significant	5.76	$P<.05\ X^2_{(.05,1)} = 3.84$
1	16	.24	Non-significant	.17	Non-significant
1	17	1.54	Non-significant	.00	Non-significant
2	17	.09	Non-significant	1.71	Non-significant
3	17	.50	Non-significant	10.80	$P<.05\ X^2_{(.05,1)} = 3.84$
4	17	.00	Non-significant	47.55	$P<.05\ X^2_{(.05,1)} = 3.84$
5	17	4.57	$P<.05\ X^2_{(.05,1)} = 3.84$	27.26	$P<.05\ X^2_{(.05,1)} = 3.84$

TABLE 2

CHI- SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
6	17	20.06	$P < .05 \; X^2_{(.05,1)} = 3.84$	33.91	$P < .05 \; X^2_{(.05,1)} = 3.84$
7	17	5.88	$P < .05 \; X^2_{(.05,1)} = 3.84$	16.66	$P < .05 \; X^2_{(.05,1)} = 3.84$
1	18	.19	Non-significant	.00	Non-significant
2	18	.00	Non-significant	.00	Non-significant
3	18	.01	Non-significant	.01	Non-significant
4	18	.00	Non-significant	.00	Non-significant
5	18	.00	Non-significant	.00	Non-significant
6	18	.00	Non-significant	.00	Non-significant

TABLE 2

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
7	18	.02	Non-significant	.01	Non-significant
8	18	.00	Non-significant	.00	Non-significant
9	18	.00	Non-significant	.00	Non-significant
1	19	.08	Non-significant	15.63	$P < .05\ X^2_{(.05,1)} = 3.84$
1	20	.08	Non-significant	3.94	$P < .05\ X^2_{(.05,1)} = 3.84$
1	21	.14	Non-significant	6.24	$P < .05\ X^2_{(.05,1)} = 3.84$
1	22	.06	Non-significant	27.55	$P < .05\ X^2_{(.05,1)} = 3.84$
1	23	5.20	$P < .05\ X^2_{(.05,1)} = 3.84$	5.38	$P < .05\ X^2_{(.05,1)} = 3.84$

TABLE 2

CHI- SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
2	23	.53	Non-significant	.04	Non-significant
3	23	1.06	Non-significant	.59	Non-significant
4	23	6.65	$P < .05\ X^2_{(.05,1)} = 3.84$	5.47	$P < .05\ X^2_{(.05,1)} = 3184$
5	23	9.19	$P < .05\ X^2_{(.05,1)} = 3.84$	14.02	$P < .05\ X^2_{(.05,1)} = 3.84$
6	23	13.65	$P < .05\ X^2_{(.05,1)} = 3.84$	25.60	$P < .05\ X^2_{(.05,1)} = 3.84$
1	24	14.18	$P < .05\ X^2_{(.05,1)} = 3.84$	12.26	$P < .05\ X^2_{(.05,1)} = 3.84$
1	25	18.40	$P < .05\ X^2_{(.05,1)} = 3.84$	.32	Non-significant
2	25	.03	Non-significant	.32	Non-significant

TABLE 2

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
3	25	7.70	$P<.05\ X^2_{(.05,1)} = 3.84$	1.37	Non-significant
4	25	8.27	$P<.05\ X^2_{(.05,1)} = 3.84$	.14	Non-significant
5	25	11.95	$P<.05\ X^2_{(.05,1)} = 3.84$	.00	Non-significant
6	25	19.70	$P<.05\ X^2_{(.05,1)} = 3.84$	1.73	Non-significant
1	26	3.80	Non-significant	1.92	Non-significant
1	27	.05	Non-significant	3.97	$P<.05\ X^2_{(.05,1)} = 3.84$
1	23	.02	Non-significant	.15	Non-significant
1 - 5	29	1.50	Non-significant	.00	Non-significant

Analysis #3: Experimental Regular Teachers versus Control Regular Teachers Comparing the First Four Sets of Monitoring Information with the Last Four Sets for each Question

A. Results

Table 3 displays the values of the chi-square tests computed for experimental and control regular teachers on each question utilized during the monitoring visits. The specific questions and page numbers are cited from the Monitoring System Manual. (See Appendix A)

It should again be pointed out that in some cases observed frequencies were combined in order to obtain adequate cell frequencies for the computation of the chi-square statistic. Also in some instances the chi-square statistic could not be calculated due to inadequate cell frequencies.

B. Conclusions

The results show almost no significant chi-square tests occurring between monitoring visits 1-4 and 5-8 for experimental and control regular teachers across all questions in the Monitoring System Manual. Those results are more than likely due to the small observed frequencies compiled over the eight monitoring visits.

Consequently, no valid conclusions can be drawn between experimental and control regular teachers regarding behaviors and/or activities observed during the monitoring visits.

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
1	1	.00	Non-significant	COULD	NOT CALCULATE
1	2	.81	Non-significant	.00	Non-significant
2	2	.00	Non-significant	COULD	NOT CALCULATE
1	3	.37	Non-significant	COULD	NOT CALCULATE
1.1	4	1.53	Non-significant	.02	Non-significant
1.2	4	1.13	Non-significant	.03	Non-significant
2.1	4	1.02	Non-significant	.19	Non-significant
2.2	4	.28	Non-significant	.01	Non-significant

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
3.1	4	.39	Non-significant	.17	Non-significant
3.2	4	.01	Non-significant	.08	Non-significant
4.1	4	.08	Non-significant	.19	Non-significant
4.2	4	.08	Non-significant	1.07	Non-significant
5.1	4	.08	Non-significant	6.40	$P \leq .05\ X^2_{(.05,1)} = 3.84$
5.2	4	.08	Non-significant	5.32	$P \leq .05\ X^2_{(.05,1)} = 3.84$
1	5	.31	Non-significant	1.54	Non-significant
1	6	.25	Non-significant	.75	Non-significant

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
1	7	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	8	.22	Non-significant	.55	Non-significant
2	8	3.51	Non-significant	.01	Non-significant
1	9	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	10	.00	Non-significant	.30	Non-significant
2	10	1.52	Non-significant	2.70	Non-significant
3	10	.00	Non-significant	.30	Non-significant
4	10	.55	Non-significant	2.01	Non-significant

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
5	10	.00	Non-significant	.00	Non-significant
6	10	3.23	Non-significant	.30	Non-significant
7	10	2.70	Non-significant	1.01	Non-significant
8	10	.00	Non-significant	.00	Non-significant
9	10	.00	Non-significant	.00	Non-significant
1	11	.19	Non-significant	2.69	Non-significant
1	12	1.42	Non-significant	.03	Non-significant
1	13	.09	Non-significant	.00	Non-significant

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
1	14	.07	Non-significant	.01	Non-significant
1	15	.51	Non-significant	.00	Non-significant
1	16	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	17	COULD	NOT CALCULATE	COULD	NOT CALCULATE
2	17	COULD	NOT CALCULATE	COULD	NOT CALCULATE
3	17	COULD	NOT CALCULATE	COULD	NOT CALCULATE
4	17	COULD	NOT CALCULATE	COULD	NOT CALCULATE
5	17	COULD	NOT CALCULATE	COULD	NOT CALCULATE

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
6	17	COULD	NOT CALCULATE	COULD	NOT CALCULATE
7	17	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	18	1.79	Non-significant	.00	Non-significant
2	18	.01	Non-significant	.01	Non-significant
3	18	.00	Non-significant	16.78	$P < .05$ $X^2_{(.05,1)} = 3.84$
4	18	.04	Non-significant	.00	Non-significant
5	18	.22	Non-significant	.19	Non-significant
6	18	1.02	Non-significant	.01	Non-significant

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
7	18	13.89	$P < .05\ X^2_{(.05,1)} = 3.84$	6.50	$P < .05\ X^2_{(.05,1)} = 3.84$
8	18	.51	Non-significant	.00	Non-significant
9	18	.01	Non-significant	.00	Non-significant
1	19	1.01	Non-significant	.00	Non-significant
1	20	1.52	Non-significant	.30	Non-significant
1	21	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	22	1.01	Non-significant	.00	Non-significant
1	23	COULD	NOT CALCULATE	COULD	NOT CALCULATE

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
2	23	COULD	NOT CALCULATE	COULD	NOT CALCULATE
3	23	COULD	NOT CALCULATE	COULD	NOT CALCULATE
4	23	COULD	NOT CALCULATE	COULD	NOT CALCULATE
5	23	COULD	NOT CALCULATE	COULD	NOT CALCULATE
6	23	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	24	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	25	COULD	NOT CALCULATE	COULD	NOT CALCULATE
2	25	COULD	NOT CALCULATE	COULD	NOT CALCULATE

TABLE 3

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS FOR MONITORING VISITS 1-4 AND 5-8

Question Number	Page Number	Chi-square Value for Visits 1-4	Significance Level	Chi-square Value for Visits 5-8	Significance Level
3	25	COULD	NOT CALCULATE	COULD	NOT CALCULATE
4	25	COULD	NOT CALCULATE	COULD	NOT CALCULATE
5	25	COULD	NOT CALCULATE	COULD	NOT CALCULATE
6	25	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	26	COULD	NOT CALCULATE	COULD	NOT CALCULATE
1	27	.00	Non-significant	.19	Non-significant
1	28	.00	Non-significant	.63	Non-significant
1 - 5	29	.22	Non-significant	.00	Non-significant

Analysis #4: Experimental Resource Teachers versus Control Resource Teachers across all Eight Sets of Monitoring Information for each Question in the Monitoring System Manual

A. Results

Table 4 displays the chi-square results for experimental and control resource teachers across all eight monitoring visits for each question in the Monitoring System Manual.

As in previous analyses, categories were combined in some instances in order to obtain adequate cell frequencies for computing the chi-square statistics.

B. Conclusions

The results tend to indicate that the experimental resource teachers displayed a higher frequency of desired behaviors and/or activities than the control resource teachers across the eight monitoring visits in the following areas:

1. Intended use of the Skinner theory of learning in instructional activities.
2. Immediate intrinsic or extrinsic reinforcement of the children's behavior.
3. Utilization of performance-based instruction in the teaching of language disabled children.
4. Opportunity to identify a child as language disabled.
5. Requesting of additional testing.
6. Developing of measurable objectives.
7. Charting and/or recording the progress of language disabled children.
8. Program planning for selected language disabled children.
9. Obtaining of materials from a regional service center.

As for the control resource teachers, they displayed a larger frequency of desirable activities than the experimental resource teachers in the area of having an educational program for every language disabled child in their classroom.

TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	1	20.24	$P < .05 \; X^2_{(.05,1)} = 3.84$
1	2	48.74	$P < .05 \; X^2_{(.05,1)} = 3.84$
2	2	1.59	Non-significant
1	3	.00	Non-significant
1.1	4	2.53	Non-significant
1.2	4	7.01	$P < .05 \; X^2_{(.05,1)} = 3.84$
2.1	4	7.06	$P < .05 \; X^2_{(.05,1)} = 3.84$
2.2	4	2.26	Non-significant

TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
3.1	4	22.01	$P<.05\ X^2_{(.05,1)} = 3.84$
3.2	4	20.62	$P<.05\ X^2_{(.05,1)} = 3.84$
4.1	4	4.12	$P<.05\ X^2_{(.05,1)} =3.84$
4.2	4	10.99	$P<.05\ X^2_{(.05,1)} = 3.84$
5.1	4	38.09	$P<.05\ X^2_{(.05,1)} = 3.84$
5.2	4	44.28	$P<.05\ X^2_{(.05,1)} = 3.84$
1	5	5.21	$P<.05\ X^2_{(.05,1)} = 3.84$
1	6	.74	Non-significant

TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	7	.12	Non-significant
1	8	3.45	Non-significant
2	8	.02	Non-significant
1	9	.15	Non-significant
1	10	.30	Non-significant
2	10	3.47	Non-significant
3	10	4.57	$P<.05\ X^2_{(.05,1)} = 3.84$
4	10	.37	Non-significant

TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
5	10	1.98	Non-significant
6	10	.22	Non-significant
7	10	2.24	Non-significant
8	10	1.09	Non-significant
9	10	3.42	Non-significant
1	11	.86	Non-significant
1	12	5.07	$P < .05$ $X^2_{(.05,1)} = 3.84$
1	13	.35	Non-significant

TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	14	5.61	Non-significant
1	15	1.58	Non-significant
1	16	.09	Non-significant
1	17	.93	Non-significant
2	17	2.59	Non-significant
3	17	14.23	$P<.05\ X^2_{(.05,1)} = 3.84$
4	17	28.04	$P<.05\ X^2_{(.05,1)} = 3.84$
5	17	34.25	$P<.05\ X^2_{(.05,1)} = 3.84$

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TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
6	17	57.40	$P < .05\ X^2_{(.05,1)} = 3.84$
7	17	24.81	$P < .05\ X^2_{(.05,1)} = 3.84$
1	18	.00	Non-significant
2	18	.00	Non-significant
3	18	.01	Non-significant
4	18	.00	Non-significant
5	18	.00	Non-significant
6	18	.00	Non-significant

TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
7	18	.01	Non-significant
8	18	.00	Non-significant
9	18	.00	Non-significant
1	19	9.59	$P<.05 \; X^2_{(.05,1)} = 3.84$
1	20	3.53	Non-significant
1	21	2.88	Non-significant
1	22	16.67	$P<.05 \; X^2_{(.05,1)} = 3.84$
1	23	12.27	$P<.05 \; X^2_{(.05,1)} = 3.84$

TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
2	23	1.29	Non-significant
3	23	1.96	Non-significant
4	23	14.05	$P<.05\ X^2_{(.05,1)} = 3.84$
5	23	26.74	$P<.05\ X^2_{(.05,1)} = 3.84$
6	23	38.36	$P<.05\ X^2_{(.05,1)} = 3.84$
1	24	28.06	$P<.05\ X^2_{(.05,1)} = 3.84$
1	25	21.43	$P<.05\ X^2_{(.05,1)} = 3.84$
2	25	.00	Non-significant

TABLE 4

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL RESOURCE TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
3	25	9.31	$P<.05\ X^2_{(.05,1)} = 3.84$
4	25	5.90	$P<.05\ X^2_{(.05,1)} = 3.84$
5	25	10.39	$P<.05\ X^2_{(.05,1)} = 3.84$
6	25	15.86	$P<.05\ X^2_{(.05,1)} = 3.84$
1	26	6.36	$P<.05\ X^2_{(.05,1)} = 3.84$
1	27	2.84	Non-significant
1	28	.04	Non-significant
1 - 5	29	.00	Non-significant

Analysis #5: Experimental Regular Teachers versus Control Regular Teachers across all Eight Sets of Monitoring Information for Each Question in the Monitoring System Manual

A. Results

Table 5 displays the chi-square results for experimental and control regular teachers across all eight monitoring visits for each question in the Monitoring System Manual. (See Appendix A)

Specific cases occurred where a majority of the observed cell frequencies for a given table were less than five. Consequently, the chi-square statistic could not be calculated.

In other cases, categories could be combined in order to obtain the minimum required cell frequencies for calculating the chi-square statistic.

B. Conclusions

Based upon limited data, it can be concluded that, in general, experimental regular teachers displayed a higher frequency of desired behaviors and/or activities in the areas of:

1. Grouping children utilizing the sociogram technique.
2. Utilizing and/or requesting educational assessment techniques for language disabled children.

On the other hand, control regular teachers displayed a higher frequency than experimental regular teachers in the obtaining of materials from a regional service center.

TABLE 5

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	1	.00	Non-significant
1	2	1.36	Non-significant
2	2	.21	Non-significant
1	3	.17	Non-significant
1.1	4	.92	Non-significant
1.2	4	.02	Non-significant
2.1	4	.02	Non-significant
2.2	4	.69	Non-significant

TABLE 5

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
3.1	4	.25	Non-significant
3.2	4	.00	Non-significant
4.1	4	.11	Non-significant
4.2	4	.04	Non-significant
5.1	4	5.50	$P<.05\ X^2_{(.05,1)} = 3.84$
5.2	4	5.09	$P<.05\ X^2_{(.05,1)} = 3.84$
1	5	2.28	Non-significant
1	5	.22	Non-significant

TABLE 5

CHI SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	7	COULD NOT	CALCULATE
1	8	.15	Non-significant
2	8	6.51	$P<.05\ X^2_{(.05,1)} = 3.84$
1	9	COULD NOT	CALCULATE
1	10	.00	Non-significant
2	10	6.02	$P<.05\ X^2_{(.05,1)} = 3.84$
3	10	.49	Non-significant
4	10	4.00	$P<.05\ X^2_{(.05,1)} = 3.84$

TABLE 5

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
5	10	.32	Non-significant
6	10	1.98	Non-significant
7	10	4.92	$P < .05 \; X^2_{(.05,1)} = 3.84$
8	10	.10	Non-significant
9	10	.52	Non-significant
1	11	3.05	Non-significant
1	12	1.40	Non-significant
1	13	.19	Non-significant

TABLE 5

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	14	.20	Non-significant
1	15	.89	Non-significant
1	16	COULD NOT	CALCULATE
1	17	COULD NOT	CALCULATE
2	17	COULD NOT	CALCULATE
3	17	COULD NOT	CALCULATE
4	17	COULD NOT	CALCULATE
5	17	COULD NOT	CALCULATE

TABLE 5

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
6	17	COULD NOT	CALCULATE
7	17	COULD NOT	CALCULATE
1	18	4.04	Non-significant
2	18	.01	Non-significant
3	18	.01	Non-significant
4	18	.00	Non-significant
5	18	.00	Non-significant
6	18	.01	Non-significant

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TABLE 5

CHI-SQUARE RESULTS FOR EXPERIMENTAL AND CONTROL REGULAR TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
7	18	.09	Non-significant
8	18	.01	Non-significant
9	18	.01	Non-significant
1	19	1.35	Non-significant
1	20	2.06	Non-significant
1	21	.05	Non-significant
1	22	.11	Non-significant
1	23	COULD NOT	CALCULATE

TABLE 5

CHI-SQUARE RESULTS FOR EXPERIMENTAO AND CONTROL REGULAR TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
2	23	COULD NOT	CALCULATE
3	23	COULD NOT	CALCULATE
4	23	COULD NOT	CALCULATE
5	23	COULD NOT	CALCULATE
6	23	COULD NOT	CALCULATE
1	24	1.45	Non-significant
1	25	COULD NOT	CALCULATE
2	25	COULD NOT	CALCULATE

TABLE 5

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
3	25	COULD NOT	CALCULATE
4	25	COULD NOT	CALCULATE
5	25	COULD NOT	CALCULATE
6	25	COULD NOT	CALCULATE
1	26	6.02	$P<.05\ X^2_{(.05,1)} = 3.84$
1	27	.00	Non-significant
1	28	.00	Non-significant
1 - 5	29	.53	Non-significant

Analysis #6: Combined Experimental Teachers versus Combined Control Teachers across all Eight Sets of Monitoring Information for each Question in the Monitoring System Manual

A. Results

Table 6 displays the chi-square results from summary analyses comparing all experimental teachers with all control teachers across all eight monitoring visits for each question contained in the Monitoring System Manual.

B. Conclusions

The results show that as a group, experimental teachers displayed a higher frequency of desired behaviors and/or activities than the control teachers as a total group in the areas of:

1. Immediate intrinsic or extrinsic reinforcement of the children's behavior.
2. Utilization of performance-based instruction in the teaching of language disabled children.
3. Development of measurable objectives.
4. Charting and/or recording the progress of language disabled children.
5. Program planning for selected language disabled children.

The only activity in which the control group teachers displayed a significantly greater frequency than the experimental group teachers was having an educational program for every L.D. child in their classroom.

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	1	4.56	Non-significant
1	2	33.47	$P<.05\ X^2_{(.05,1)} = 3.84$
2	2	2.19	Non-significant
1	3	.10	Non-significant
1.1	4	.31	Non-significant
1.2	4	3.55	Non-significant
2.1	4	4.34	$P<.05\ X^2_{(.05,1)} = 3.84$
2.2	4	1.48	Non-significant

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
3.1	4	20.34	$P<.05\ X^2_{(.05,1)} = 3.84$
3.2	4	15.48	$P<.05\ X^2_{(.05,1)} = 3.84$
4.1	4	1.34	Non-significant
4.2	4	6.66	$P<.05\ X^2_{(.05,1)} = 3.84$
5.1	4	43.19	$P<.05\ X^2_{(.05,1)} = 3.84$
5.2	4	48.44	$P<.05\ X^2_{(.05,1)} = 3.84$
1	5	2.11	Non-significant
1	6	1.35	Non-significant

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	7	.08	Non-significant
1	8	3.31	Non-significant
2	8	.24	Non-significant
1	9	1.31	Non-significant
1	10	.08	Non-significant
2	10	.23	Non-significant
3	10	5.80	$P<.05\ X^2_{(.05,1)} = 3.84$
4	10	2.19	Non-significant

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING **VISITS**

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
5	10	3.28	Non-significant
6	10	.79	Non-significant
7	10	4.93	$P < .05\ X^2_{(.05,1)} = 3.34$
8	10	1.28	Non-significant
9	10	1.68	Non-significant
1	11	.27	Non-significant
1	12	2.61	Non-significant
1	13	.00	Non-significant

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
1	14	.01	Non-significant
1	15	.31	Non-significant
1	15	.02	Non-significant
1	17	.94	Non-significant
2	17	3.36	Non-significant
3	17	14.07	$P<.05\ X^2_{(.05,1)} = 3.84$
4	17	29.47	$P<.05\ X^2_{(.05,1)} = 3.84$
5	17	35.81	$P<.05\ X^2_{(.05,1)} = 3.84$

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
6	17	59.21	$P < .05 \; X^2_{(.05,1)} = 3.84$
7	17	26.20	$P < .05 \; X^2_{(.05,1)} = 3.84$
1	18	.27	Non-significant
2	18	.00	Non-significant
3	18	.01	Non-significant
4	18	.00	Non-significant
5	18	.00	Non-significant
6	18	.00	Non-significant

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
7	18	.01	Non-significant
8	18	.00	Non-significant
9	18	.00	Non-significant
1	19	6.47	$P<.05\ X^2_{(.05,1)} = 3.84$
1	20	.40	Non-significant
1	21	3.83	Non-significant
1	22	13.07	$P<.05\ X^2_{(.05,1)} = 3.84$
1	23	8.60	$P<.05\ X^2_{(.05,1)} = 3.84$

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
2	23	.28	Non-significant
3	23	1.97	Non-significant
4	23	12.08	$P < .05\ X^2_{(.05,1)} = 3.84$
5	23	23.94	$P < .05\ X^2_{(.05,1)} = 3.84$
6	23	30.76	$P < .05\ X^2_{(.05,1)} = 3.84$
1	24	13.51	$P < .05\ X^2_{(.05,1)} = 3.84$
1	25	24.38	$P < .05\ X^2_{(.05,1)} = 3.84$
2	25	1.10	Non-significant

TABLE 6

CHI-SQUARE RESULTS FOR ALL EXPERIMENTAL AND CONTROL TEACHERS ACROSS ALL EIGHT MONITORING VISITS

Question Number	Page Number	Chi-square Value for Visits 1-8	Significance Level
3	25	10.93	$P < .05 \; X^2_{(.05,1)} = 3.84$
4	25	6.74	$P < .05 \; X^2_{(.05,1)} = 3.84$
5	25	12.12	$P < .05 \; X^2_{(.05,1)} = 3.84$
6	25	18.02	$P < .05 \; X^2_{(.05,1)} = 3.84$
1	26	.71	Non-significant
1	27	2.48	Non-significant
1	28	.00	Non-significant
1 - 5	29	.00	Non-significant

Summary

In summary, it can generally be concluded that, during the 1972-73 school year, there was a significantly different approach taken in the teaching of language disabled children by teachers who had experience in a performance-based staff development program (experimental group) when compared to teachers who had no previous experience with respect to a performance-based staff development program (control group).

The question that now has to be answered is: Which approach to teaching language disabled children leads to greater school success with respect to achievement and attitudes?

The answer to this question will be presented in the next section of this chapter.

Student Achievement Results

A. Resource Students

Table 7 shows the pre-, mid-, and post-mean scores for the experimental and control resource students along with the F values computed for between-group differences for selected subtests on the Metropolitan Achievement Tests.

The resultant F values for between-group differences were statistically significant for all subtests. The pre-, mid-, and post-mean scores reveal that the experimental resource students consistently scored higher than the control resource students on all the subtests of the Metropolitan Achievement Test.

However, further observation shows that in most cases the pre-mean differences between experimental and control resource students were as large

TABLE 7

PRE-,MID-, AND POST-MEAN RESULTS FOR RESOURCE STUDENTS ON SELECTED SUBTESTS OF THE METROPOLITAN ACHIEVEMENT TEST

Experimental Group N = 197 Control Group N = 197

Subtest	Group	Pre-Mean	Mid-Mean	Post-Mean	F
Math	Experimental	68.8	71.7	78.0	72.80*
Computation	Control	57.6	60.6	66.5	
Math	Experimental	64.8	68.6	71.5	68.17*
Concepts	Control	55.6	58.4	61.0	
Math	Experimental	63.2	66.1	70.7	50.40*
Problem Solving	Control	55.2	56.3	60.0	
Math	Experimental	69.6	72.8	77.2	74.75*
Total	Control	58.7	61.7	65.7	
Word	Experimental	63.9	67.5	69.6	98.07*
Knowledge	Control	53.7	58.0	60.2	
Reading	Experimental	60.8	63.6	66.0	45.90*
	Control	51.9	54.4	57.5	
Reading	Experimental	61.6	65.0	66.8	63.05*
Total	Control	52.2	55.2	57.8	
Language	Experimental	65.8	68.9	73.1	25.48*
	Control	60.3	63.0	65.4	
Spelling	Experimental	63.4	65.4	69.4	23.85*
	Control	56.4	59.8	64.4	

*Significant at $\alpha = .05$ $F_{(.05,1,392)} = 3.84$

or larger than the post-mean differences. Consequently, the conclusion can be drawn that the reason for the significant F values between the two groups was due to the fact that the groups were different to begin with.

The results suggested a further analysis of the data. Mean gains were computed for each group for each subtest utilizing pre- and post-mean scores. Utilizing the mean gains, independent t-tests were computed to determine if there were significant differences between the groups with respect to mean gains on any given subtest. Table 8 displays the results of this further analysis.

The results indicate that there were no statistically significant differences between the mean gains for the experimental and control group resource students for any of the nine subtests.

However, it should be noted that the mean gain for the experimental resource students did surpass the mean gain for the control resource students in the following areas:

1. Math Computation
2. Math Concepts
3. Math Problem Solving
4. Math Total
5. Language

B. Regular Classroom Students

Table 9 displays the pre-, mid-, and post-mean scores for the experimental and control regular classroom students along with the F values computed for between-group differences for selected subtests on the Metropolitan Achievement Test.

The resultant F values show that no significant differences occurred between pre-, mid-, and post-test scores for the experimental and control regular classroom students on any of the selected subtests from the Metropolitan Achievement Test.

TABLE 8

MEAN GAINS FOR RESOURCE STUDENTS ON SELECTED
SUBTESTS OF THE METROPOLITAN ACHIEVEMENT TEST

Experimental Group N = 197 Control Group N = 197

Subtest	Group	Pre-Mean	Post-Mean	Mean Gain	t
Math Computation	Experimental	68.8	78.0	9.2	+.05
	Control	57.6	66.5	8.9	
Math Concepts	Experimental	64.8	71.5	6.7	+.57
	Control	55.6	61.0	5.4	
Math Problem Solving	Experimental	63.2	70.7	7.5	+1.01
	Control	55.2	60.0	4.8	
Math Total	Experimental	69.6	77.2	7.6	+.24
	Control	58.7	65.7	7.0	
Word Knowledge	Experimental	63.9	69.6	5.7	-1.00
	Control	53.7	60.2	6.5	
Reading	Experimental	60.8	66.0	5.2	-.13
	Control	51.9	57.5	5.6	
Reading Total	Experimental	61.6	66.8	5.2	-.22
	Control	52.2	57.8	5.6	
Language	Experimental	65.8	73.1	7.3	+.79
	Control	60.3	65.4	5.1	
Spelling	Experimental	63.4	69.4	6.0	-.87
	Control	56.4	64.4	8.0	

TABLE 9

PRE-,MID-, AND POST-MEAN RESULTS FOR REGULAR CLASSROOM STUDENTS ON SELECTED SUBTESTS OF THE METROPOLITAN ACHIEVEMENT TEST

Experimental Group N = 45 Control Group N = 45

Subtest	Group	Pre-Mean	Mid-Mean	Post-Mean	F
Math Computation	Experimental	71.3	74.2	82.4	.00
	Control	71.2	74.7	82.3	
Math Concepts	Experimental	72.3	75.6	79.0	.82
	Control	70.9	73.0	76.0	
Math Problem Solving	Experimental	72.5	77.0	77.1	.54
	Control	71.8	71.9	76.8	
Math Total	Experimental	76.2	80.1	83.8	.58
	Control	75.2	76.3	82.7	
Word Knowledge	Experimental	72.1	75.0	78.3	.39
	Control	71.2	73.9	75.7	
Reading	Experimental	73.3	73.4	74.6	1.82
	Control	69.2	69.8	69.8	
Reading Total	Experimental	72.4	74.2	76.3	1.17
	Control	69.5	71.4	72.9	
Language	Experimental	76.1	79.0	86.0	1.25
	Control	76.3	75.8	80.4	
Spelling	Experimental	74.3	77.9	81.4	2.59
	Control	72.3	74.0	75.6	

A further analysis was conducted to determine if significant differences existed between mean pre/post gains for the experimental and control regular classroom students on the selected subtests from the Metropolitan Achievement Test. Table 10 displays the resulting independent t-test values.

The results show that the experimental regular classroom students had a statistically greater gain between pre- and post- measurements in Language than the control regular classroom students.

In addition, even though the results were not statistically significant, the experimental regular classroom students showed greater gains than the control regular classroom students in the following areas:

1. Math Concepts
2. Math Total
3. Word Knowledge
4. Reading
5. Reading Total
6. Spelling

Student Attitude Results

A. Resource Students

The resource students were given a semantic differential three times during the school year for the purpose of collecting information on their attitudes toward self, school, and reading (See Appendix U for a copy of the instrument.) The possible range of scores for any given concept was 0 - 48 with the highest value reflecting the highest positive attitude.

Table 11 shows the pre-, mid-, and post-mean scores for the experimental and control resource students along with the F values computed for between-group differences on the three concepts: self, school, and reading.

TABLE 10

MEAN GAINS FOR REGULAR CLASSROOM STUDENTS ON SELECTED SUBTESTS OF THE METROPOLITAN ACHIEVEMENT TEST

Experimental Group N = 45 Control Group N = 45

Subtest	Group	Pre-Mean	Post-Mean	Mean Gain	t
Math Computation	Experimental	71.3	82.4	11.1	+.00
	Control	71.2	82.3	11.1	
Math Concepts	Experimental	72.3	79.0	6.7	+.85
	Control	70.9	76.0	5.1	
Math Problem Solving	Experimental	72.5	77.1	4.6	-.16
	Control	71.8	76.8	5.0	
Math Total	Experimental	76.2	83.8	7.6	+.12
	Control	75.2	82.7	7.5	
Word Knowledge	Experimental	72.1	78.3	6.2	+.72
	Control	71.2	75.7	4.5	
Reading	Experimental	73.3	74.6	1.3	+.30
	Control	69.2	69.8	.6	
Reading Total	Experimental	72.4	76.3	3.9	+.20
	Control	69.5	72.9	3.4	
Language	Experimental	76.1	86.0	9.9	+2.55*
	Control	76.3	80.4	4.1	
Spelling	Experimental	74.3	81.4	7.1	+1.95
	Control	72.3	75.6	3.3	

*Significant at $\alpha = .05$ $t_{(.05,88)} = 1.98$

TABLE 11

PRE-, MID-, AND POST-MEAN ATTITUDE RESULTS
FOR RESOURCE STUDENTS

Experimental Group N = 197 Control Group N - 197

Concept	Group	Pre-Mean	Mid-Mean	Post-Mean	F
Self	Experimental	33.0	34.4	32.5	3.33
	Control	34.5	34.8	34.5	
School	Experimental	28.1	29.2	28.6	15.89*
	Control	32.3	32.9	32.2	
Reading	Experimental	31.7	33.1	32.1	7.68*
	Control	34.0	34.5	35.4	

*Significant at γ = .05 $F_{(.05,1,392)} = 3.84$

The results show a statistically significant difference between experimental and control resource students in their attitudes toward school and reading with the control resource student having the more positive attitudes.

However, it should be noted that the post-mean differences between the experimental and control group students differed very little from the pre-mean differences indicating that a significant difference in attitudes between the experimental and control resource students existed at the beginning of the 1972-73 school year.

Further, it is interesting to note that with one exception, the attitudes of the students increased between pre- and mid- administrations of the semantic differential but decreased between mid- and post- administrations of the instrument.

Because of the pre-mean differences between the experimental and control resource students, a further analysis of the data was conducted to determine if any significant differences existed between pre/post mean gains for the experimental and control resource students. Table 12 displays the resultant independent t-tests.

TABLE 12

MEAN PRE/POST ATTITUDE GAINS FOR RESOURCE STUDENTS

Experimental Group N = 197 Control Group N = 197

Concept	Group	Pre-Mean	Post-Mean	Mean Gain	t
Self	Experimental	33.0	32.5	- .5	-.34
	Control	34.5	34.5	.0	
School	Experimental	28.1	28.6	.5	.48
	Control	32.3	32.2	.1	
Reading	Experimental	31.7	32.1	.4	-.90
	Control	34.0	35.4	1.4	

The calculated independent t-tests did not result in any statistical significance between the experimental and control groups' mean gains. However, the control resource students did have higher gains than the experimental resource students in attitudes toward self and reading.

Further, it should be noted that all post-mean attitude scores were at the positive end of the semantic differential.

B. Regular Classroom Students

Table 13 displays the pre-, mid-, and post-mean scores for experimental and control regular classroom students from the semantic differential which was used to assess their attitudes toward self, school, and reading. (See Appendix C for a copy of the instrument) In addition, F values are reported concerning between-group differences

TABLE 13

PRE-, MID-, AND POST-MEAN ATTITUDE RESULTS FOR REGULAR CLASSROOM STUDENTS

Experimental Group N = 45 Control Group N = 45

Concept	Group	Pre-Mean	Mid-Mean	Post-Mean	F
Self	Experimental	36.4	35.7	35.8	3.13
	Control	34.4	33.3	33.3	
School	Experimental	32.7	37.6	36.1	7.21*
	Control	33.2	29.3	32.3	
Reading	Experimental	37.2	38.7	37.5	13.15*
	Control	34.1	31.9	32.3	

*Significant at $\gamma = .05$ $F_{(.05,1,88)} = 3.92$

The results show that significant differences exist between the attitudes of experimental and control regular classroom students toward school and reading, with the experimental regular classroom students having the higher attitudes. Further, although statistical significance did not occur, the experimental regular classroom students had higher positive attitudes toward self than the control regular classroom students.

Finally, it should be noted that there tended to be a steady decrease in positive attitudes toward self for both groups between pre-, mid-, and post- administrations of the semantic differential. Also, for attitudes toward school and reading, the experimental group students increased their scores between pre- and mid- administrations of the instruments but decreased their scores between mid- and post- administrations, whereas the control group students decreased their scores between pre- and mid- administrations and increased their scores between mid- and post- administrations.

A further analysis was conducted on the results of the regular classroom students to determine if any significant differences existed between the pre/post mean gains for the experimental and control groups. Table 14 shows the resultant independent t-tests.

TABLE 14

MEAN PRE/POST ATTITUDE GAINS FOR REGULAR CLASSROOM STUDENTS

Experimental Group N = 45 Control Group N = 45

Concept	Group	Pre-Mean	Post-Mean	Mean Gain	t
Self	Experimental Control	36.4 34.4	35.8 33.3	- .6 -1.1	.24
School	Experimental Control	32.7 33.2	36.1 32.3	3.4 - .9	2.03*
Reading	Experimental Control	37.2 34.1	37.5 32.3	.3 -1.8	.98

*Significant γ = .05 $t_{(.05,78)} = 1.99$

The results indicate that a significant difference exists between the mean gains of experimental and control regular classroom students with respect to their attitudes toward school.

Further, it should be pointed out that (1) the post-means for the experimental students were higher in value for all three concepts than the control group means, (2) in all instances, the control regular classroom students showed a decrease in positive attitudes between pre- and post-administrations of the semantic differential and (3) all post-means were at the positive end of the semantic differential range.

Teacher Attitude Results

The resource teachers were given a semantic differential three times during the 1972-73 school year for the purpose of assessing their attitudes toward self, reading and language handicapped students. (See Appendix B for a copy of the instrument.)

Table 15 displays the pre-, mid, and post-mean results for experimental and control resource teachers along with F values which were computed to determine if any significant between-group differences existed in attitudes.

TABLE 15

PRE-, MID-, AND POST-MEAN ATTITUDE RESULTS FOR RESOURCE TEACHERS

Experimental Group N = 11 Control Group N = 11

Concept	Group	Pre-Mean	Mid-Mean	Post-Mean	F
Self	Experimental Control	46.8 44.5	47.3 45.4	47.3 44.5	.92
Reading	Experimental Control	46.3 40.5	42.9 44.6	41.4 40.9	.27
Language Handicapped Students	Experimental Control	36.8 37.8	39.1 34.6	40.4 38.6	.25

The results indicate that no significant differences exist between experimental and control resource teachers with respect to their attitudes toward self, reading, and language handicapped students.

Also it should be noted that each concept had a possible range of scores of 0 - 60 and all post-mean scores were well within the positive end of the range.

Since there were differences between the pre-mean attitude scores for the experimental and control groups, independent t-tests were conducted to determine if any significant differences existed between pre/post mean gains for the experimental and control resource teachers. Table 16 shows the resultant independent t-tests.

TABLE 16

MEAN PRE/POST ATTITUDE GAIN FOR RESOURCE TEACHERS

Experimental Group N - 11 Control Group N - 11

Concept	Group	Pre-Mean	Post-Mean	Mean Gain	T
Self	Experimental Control	46.8 44.5	47.3 44.5	.5 .0	.18
Reading	Experimental Control	46.3 40.5	41.4 40.9	-4.9 .4	-2.09*
Language Handicapped Students	Experimental Control	36.8 37.8	40.4 38.6	3.6 .8	.96

*Significant at γ = .05 $t_{(.05,20)} = 2.09$

The results indicate that a significant difference exists between the mean gains of experimental and control resource teachers with respect to attitudes toward reading with the control group having the higher mean gain between pre- and post- administrations of the semantic differential.

In addition, although the mean gains were not statistically significant, the experimental resource teachers had a higher mean gain than the control resource teachers in attitudes toward self and language handicapped students.

Based upon the results described in this chapter, some conclusions are drawn and reported in Chapter V.

CHAPTER V

CONCLUSIONS

From the information reported in Chapter IV, a number of conclusions can be drawn with respect to the study carried out by the Staff Development Component of Project CHILD.

1. A performance based staff development program for teachers of the language handicapped tends to result in a more frequent observation of behaviors and instructional activities that are deemed as effective in the teaching of language handicapped children.
2. Language handicapped children who are taught by teachers who have experienced a performance based staff development program tend to achieve at higher levels in mathematics, reading, spelling, and language. In addition, these students tend to have a more positive attitude toward self, school, and reading.
3. A performance based staff development program tends to be more efficient with respect to time in providing teachers of the language handicapped with required college course credits.

Chapter VI describes a set of recommendations based upon the above conclusions.

CHAPTER VI

RECOMMENDATIONS

From the conclusions reported in Chapter V, the following recommendations are made:

1. Performance based staff development programs should be initiated in colleges and universities including additional curriculum areas.

2. Studies should be carried out in the areas of achievement and attitudes involving students of other grade levels who have been taught by teachers trained in a performance based staff development program.

3. Refinement of the present performance based packages should take place in those areas where desired behaviors and activities were not observed with subsequent follow-up studies taking place.

APPENDIX A

MONITORING SYSTEMS MANUAL

MONITORING SYSTEM MANUAL

QUESTIONS TO BE ASKED PRIOR TO OBSERVATION PERIOD

I. **During the period of observation,** what learning theory does the teacher intend to use in his/her instructional activities? Check one.

___Skinner

___Gestalt

___Other: Describe____

Turn to page 2

QUESTIONS TO BE ASKED AFTER OBSERVATION PERIOD

I. At the completion of the observation, was the childrens' behavior immediately reinforced, intrinsically or extrinsically, either by the teacher or some other method? Check one.

___Yes ___No

II. Did the teacher apply his/her intended learning theory? Check one.

___Yes ___No

Turn to page 3

I. **Does the teacher feel that performance-based instruction is of value in training children with learning disabilities?** Check one.

___Yes Turn to page 4

___No Turn to page 5

___Don't Know Turn to page 5

I. Does the teacher use pre-assessment techniques? Check one.

___Yes If "Yes": ___No

Can the teacher provide an example of a pre-assessment technique? Check one.

___Yes ___No

II. Does the teacher use performance objectives? Check one.

___Yes If "Yes": ___No

Can the teacher provide an example of a performance objective? Check one.

___Yes ___No

III. Does the teacher write or specify learning experiences for the children? Check one.

___Yes If "Yes": ___No

Can the teacher provide an example of a learning experience? Check one.

___Yes ___No

IV. Does the teacher use self-evaluation techniques? Check one.

___Yes If "Yes": ___No

Can the teacher provide an example of a self-evaluation technique? Check one.

___Yes ___No

V. Does the teacher use proficiency assessment techniques? Check one.

___Yes If "Yes": ___No

Can the teacher provide an example of a proficiency assessment technique? Check one.

___Yes ___No

Turn to Page 5

I. Has the teacher had the opportunity to identify a child as language disabled? Check one.

____Yes Turn to page 6

____No Turn to page 7

I. Name of child ______________________________ (fill in)

Have the teacher describe four (4) characteristics that identify this child as language disabled. Fill in.

(fill in)

Characteristic #1 ______________________________

Characteristic #2 ______________________________

Characteristic #3 ______________________________

Characteristic #4 ______________________________

Turn to page 8

I. Select a child from the classroom.

Name of child__________________________________(fill in)

Have the teacher describe four (4) characteristics that identify this child as language disabled. Fill in.

(fill in)

Characteristic #1 ______________________________

Characteristic #2 ______________________________

Characteristic #3 ______________________________

Characteristic #4 ______________________________

Turn to page 8

I. Does the teacher have a means for recording the frequency of a given behavior in the children? Examples may be provided by the teacher or displayed somewhere in the classroom. Check one.

___Yes ___No

II. In dealing with the social problems of L.D. children, what techniques do the teacher use to group the children in their instructional activities? Check one.

___Sociogram Turn to page 9

___Other. Describe technique: ________________________

Turn to page 10

___No response because of lack of opportunity. Turn to page 10

1. Can the teacher provide an example of a sociogram? Check one.

___Yes ___No

Turn to page 10

Has the teacher requested any of the following tests to be administered to the children?

I. Arithmetic Diagnostic Test. Check one.

___Yes Name of test ______________________________
___No

II. Handwriting Diagnostic Test. Check one.

___Yes Name of test ______________________________
___No

III. Language Diagnostic Test. Check one.

___Yes Name of test ______________________________
___No

IV. Motor Skills Diagnostic Test. Check one.

___Yes Name of test ______________________________
___No

V. Perception Diagnostic Test. Check one.

___Yes Name of test ______________________________
___No

VI. Reading Diagnostic Test. Check one.

___Yes Name of test ______________________________
___No

VII. Spelling Diagnostic Test. Check one.

___Yes Name of test ______________________________
___No

VIII. Achievement Test. Check one.

___Yes Name of test ______________________________
___No

IX. Sociometric Test. Check one.

___Yes Name of test ______________________________
___No

Turn to page 11

I. Does the teacher have any children in his/her room for whom there is a need for additional psychological testing? Check one.

___Yes Turn to page 12

___No Turn to page 15

___Don't Know Turn to page 15

I. Has the teacher requested additional testing? Check one.

___Yes Turn to page 13

___No Turn to page 14

I. What tests have been requested by the teacher? Check only those tests which are mentioned.

___WISC

___WRAT

___Berry

___ITPA

___Don't Know

Turn to page 15

I. What tests would the teacher request? Check only those tests which are mentioned.

___WISC

___WRAT

___Berry

___ITPA

___Don't Know

Turn to page 15

I. Is the teacher writing performance objectives for any child in his/her classroom which describe the child's desired change in behavior and method of measurement? Check one.

___Yes Turn to page 16

___No Turn to page 18

___Don't Know Turn to page 18

I. Can the teacher provide an example of a performance objective? Check one.

___Yes Turn to page 17

___No Turn to page 18

I. For which behavioral domain is the objective written? Check one.

___Cognitive ___Affective ___Psychomotor

II. Does the objective specify who is to perform the desired behavior? Check one.

___Yes ___No

III. Does the objective specify a behavioral level using one of the following sixteen terms?

Cognitive
1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation

Affective
1. Receive
2. Respond
3. Value
4. Organization
5. Characterization

Psychomotor
1. Imitation
2. Manipulation
3. Precision
4. Articulation
5. Naturalization

Check one.

___Yes ___No

IV. Does the objective contain an instructional variable? Check one.

___Yes ___No

V. Does the objective contain a method of measurement? Check one.

___Yes ___No

VI. Does the objective contain a time or prerequisite? Check one.

___Yes ___No

VII. Does the objective contain a proficiency level? Check one.

___Yes ___No

Turn to page 18

From____________________ to____________________ (fill in dates)

I. Has the teacher applied the Perceptual Motor Approach? Check one.

___Yes ___No ___Don't Know

II. Has the teacher applied the Developmental Approach in Visual Perception? Check one.

___Yes ___No ___Don't Know

III. Has the teacher applied the Neuro-Physiological Approach? Check one.

___Yes ___No ___Don't Know

IV. Has the teacher applied the Linguistic Approach? Check one.

___Yes ___No ___Don't Know

V. Has the teacher applied the Diagnostic Remedial Approach in Basic School Subjects? Check one.

___Yes ___No ___Don't Know

VI. Has the teacher applied Hewett's Model of Behavior Modification? Check one.

___Yes ___No ___Don't Know

VII. Has the teacher applied the APSL method? Check one.

___Yes ___No ___Don't Know

VIII. Has the teacher applied the PI method? Check one.

___Yes ___No ___Don't Know

IX. Has the teacher applied the IPP method? Check one.

___Yes ___No ___Don't Know

Turn to page 19

I. Does the teacher have a systematic procedure for charting or recording a L.D. child's progress in academic performance and social behavior? Check one.

___Yes Describe charting procedure______________________________

____

___No

Turn to page 20

I. Does the teacher use a systematic procedure for recording his/her teaching behavior? Check one.

___Yes Turn to page 21

___No Turn to page 22

___Don't Know Turn to page 22

I. Can the teacher describe the system or provide an example? Check one.

___Yes If "Yes": ___No

Describe the system: ________________

____

____

____

Turn to page 22

I. Does the teacher have an educational program for every L.D. child in his/her classroom? Check one.

___Yes Turn to page 23

___No Turn to page 24

Select one educational program.

Name of child____________________________________(fill in)

I. Program lists child's greatest strengths. Check one.

___Yes ___No

II. Program lists child's greatest weaknesses. Check one.

___Yes ___No

III. Program lists child's best channel for receiving information. Check one.

___Yes ___No

IV. Program indicates child's best expressive channel. Check one.

___Yes ___No

V. Program lists objectives for the child. Check one.

___Yes ___No

VI. Program describes teaching strategies for attaining performance objectives. Check one.

___Yes ___No

Turn to page 26

I. Does the teacher have at least one educational program for an L.D. child? Check one.

___Yes Turn to page 25

___No Turn to page 26

Name of child for whom educational program is written:

____(fill in)

I. Program lists child's greatest strengths. Check one.

___Yes ___No

II. Program lists child's greatest weaknesses. Check one.

___Yes ___No

III. Program lists child's best channel for receiving information. Check one.

___Yes ___No

IV. Program indicates child's best expressive channel. Check one.

___Yes ___No

V. Program lists objectives for the child. Check one.

___Yes ___No

VI. Program describes teaching strategies for attaining performance objectives. Check one.

___Yes ___No

Turn to page 26

I. Has the teacher obtained materials from a regional service center (SEIMC)? Check one.

___Yes ___No

Turn to page 27

I. Does the teacher use a report form other than the report card to communicate children's progress to other people? Check one.

___Yes Turn to page 28

___No Turn to page 29

I. Can the teacher provide an example of a report form? Check one.

___Yes ___No

Turn to page 29

From____________________ to____________________ (insert dates)

I. How many parent conferences have been held?

________(fill in number)

II. How many teacher conferences have been held?

________(fill in number)

III. How many conferences have been held with administrators?

________(fill in number)

IV. How many conferences have been held with other professional people?

________(fill in number)

V. How many conferences have been held with pupils?

________(fill in number)

APPENDIX B

TEACHER SEMANTIC DIFFERENTIAL

TOPICS TO BE RATED

INSTRUCTIONS:

We would like your opinion of a specific set of topics.

Please rate the topics by placing a check mark along the continua listed below in relation to the intensity of your feelings.

EXAMPLE:

SPANKING

If you feel that a spanking was good, you should mark as follows:

Good __X__ _____ _____ _____ _____ _____ _____ Bad

If you feel that spanking was passive, mark as follows:

Active _____ _____ _____ _____ _____ _____ __X__ Passive

If you feel that spanking was neither Progressive nor Regressive, you may mark between the extremes, depending upon how you feel about spanking. For example, you may mark as follows:

Progressive _____ _____ _____ __X__ _____ _____ _____ Regressive

Continue from one page to the next until you have rated all the topics listed on the attached pages. Be sure and rate all sets of terms.

Rate the following:

MYSELF

1. Harmonious _____ _____ _____ _____ _____ _____ _____ Dissonant

2. Constricted _____ _____ _____ _____ _____ _____ _____ Spacious

3. Complex _____ _____ _____ _____ _____ _____ _____ Simple

4. Good _____ _____ _____ _____ _____ _____ _____ Bad

5. Positive _____ _____ _____ _____ _____ _____ _____ Negative

6. Intentional _____ _____ _____ _____ _____ _____ _____ Unintentional

7. Constrained _____ _____ _____ _____ _____ _____ _____ Free

8. Progressive _____ _____ _____ _____ _____ _____ _____ Regressive

9. Tenacious _____ _____ _____ _____ _____ _____ _____ Yielding

10. Active _____ _____ _____ _____ _____ _____ _____ Passive

Rate the following:

READING PROGRAM

1. Harmonious ____ ____ ____ ____ ____ ____ ____ Dissonant

2. Constricted ____ ____ ____ ____ ____ ____ ____ Spacious

3. Complex ____ ____ ____ ____ ____ ____ ____ Simple

4. Good ____ ____ ____ ____ ____ ____ ____ Bad

5. Positive ____ ____ ____ ____ ____ ____ ____ Negative

6. Intentional ____ ____ ____ ____ ____ ____ ____ Unintentional

7. Constrained ____ ____ ____ ____ ____ ____ ____ Free

8. Progressive ____ ____ ____ ____ ____ ____ ____ Regressive

9. Tenacious ____ ____ ____ ____ ____ ____ ____ Yielding

10. Active ____ ____ ____ ____ ____ ____ ____ Passive

Rate the following:

STUDENTS - LANGUAGE HANDICAPPED

1. Harmonious _____ _____ _____ _____ _____ _____ _____ Dissonant

2. Constricted _____ _____ _____ _____ _____ _____ _____ Spacious

3. Complex _____ _____ _____ _____ _____ _____ _____ Simple

4. Good _____ _____ _____ _____ _____ _____ _____ Bad

5. Positive _____ _____ _____ _____ _____ _____ _____ Negative

6. Intentional _____ _____ _____ _____ _____ _____ _____ Unintentional

7. Constrained _____ _____ _____ _____ _____ _____ _____ Free

8. Progressive _____ _____ _____ _____ _____ _____ _____ Regressive

9. Tenacious _____ _____ _____ _____ _____ _____ _____ Yielding

10. Active _____ _____ _____ _____ _____ _____ _____ Passive

APPENDIX C

STUDENT SEMANTIC DIFFERENTIAL

TOPICS TO BE RATED

INSTRUCTIONS:

We would like to know how you feel about different subjects.

Please rate the subjects by placing an "X" in one of the blanks closest to how you feel.

EXAMPLE:

There are 7 blanks - the center blank means you do not favor one or the other.

ICE CREAM

Do you feel that ice cream is cold or hot?

COLD ___X___ _______ _______ _______ _______ _______ _______ HOT

Do you feel that ice cream is sweet or sour?

SWEET ___X___ _______ _______ _______ _______ _______ _______ SOUR

Do you feel that ice cream is hard or soft?

HARD _______ _______ _______ _______ _______ _______ ___X___ SOFT

Continue from one page to the next until you have rated all the topics listed on the attached pages. Be sure and rate all sets of terms.

Rate the following:

MYSELF

1. Important _____ _____ _____ _____ _____ _____ _____ Unimportant
2. Difficult _____ _____ _____ _____ _____ _____ _____ Easy
3. Boyish _____ _____ _____ _____ _____ _____ _____ Girlish
4. Good _____ _____ _____ _____ _____ _____ _____ Bad
5. Serious _____ _____ _____ _____ _____ _____ _____ Funny
6. Alive _____ _____ _____ _____ _____ _____ _____ Dead
7. Dull _____ _____ _____ _____ _____ _____ _____ Sharp
8. Fast _____ _____ _____ _____ _____ _____ _____ Slow
9. Strong _____ _____ _____ _____ _____ _____ _____ Weak
10. Successful _____ _____ _____ _____ _____ _____ _____ Unsuccessful

Rate the following:

SCHOOL

1. Important ____ ____ ____ ____ ____ ____ ____ Unimportant

2. Difficult ____ ____ ____ ____ ____ ____ ____ Easy

3. Boyish ____ ____ ____ ____ ____ ____ ____ Girlish

4. Good ____ ____ ____ ____ ____ ____ ____ Bad

5. Serious ____ ____ ____ ____ ____ ____ ____ Funny

6. Alive ____ ____ ____ ____ ____ ____ ____ Dead

7. Dull ____ ____ ____ ____ ____ ____ ____ Sharp

8. Fast ____ ____ ____ ____ ____ ____ ____ Slow

9. Strong ____ ____ ____ ____ ____ ____ ____ Weak

10. Successful ____ ____ ____ ____ ____ ____ ____ Unsuccessful

Rate the following:

READING

1. Important ____ ____ ____ ____ ____ ____ ____ Unimportant

2. Difficult ____ ____ ____ ____ ____ ____ ____ Easy

3. Boyish ____ ____ ____ ____ ____ ____ ____ Girlish

4. Good ____ ____ ____ ____ ____ ____ ____ Bad

5. Serious ____ ____ ____ ____ ____ ____ ____ Funny

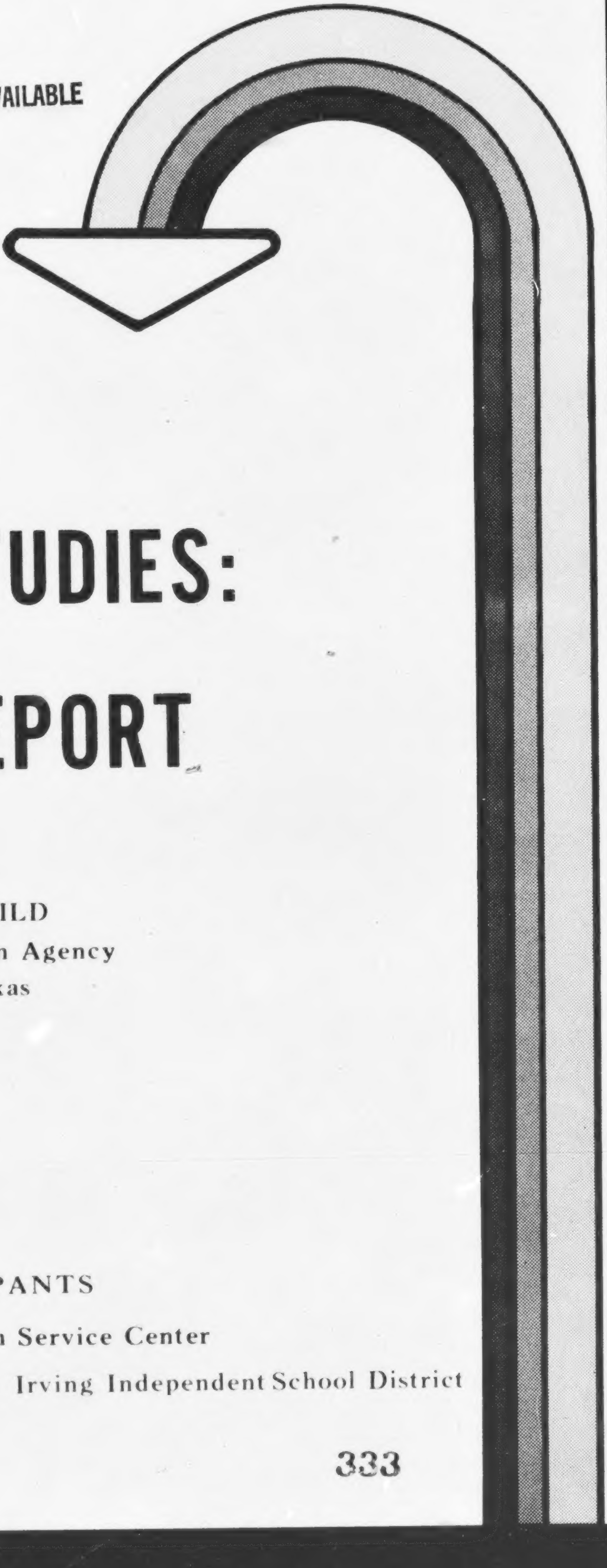
6. Alive ____ ____ ____ ____ ____ ____ ____ Dead

7. Dull ____ ____ ____ ____ ____ ____ ____ Sharp

8. Fast ____ ____ ____ ____ ____ ____ ____ Slow

9. Strong ____ ____ ____ ____ ____ ____ ____ Weak

10. Successful ____ ____ ____ ____ ____ ____ ____ Unsuccessful



MINOR STUDIES:
FINAL REPORT

Project CHILD
Texas Education Agency
Austin, Texas

PARTICIPANTS

Region 10 Education Service Center

Dallas Independent School District
Irving Independent School District

INCIDENCE OF NEUROLOGICAL SOFT SIGNS IN FOURTH GRADE LEARNING DISABLED OR NON-LEARNING DISABLED CHILDREN -

A PROGRESS REPORT

INCIDENCE OF NEUROLOGICAL SOFT SIGNS IN FOURTH GRADE LEARNING DISABLED OR NON-LEARNING DISABLED CHILDREN

This study utilized all of the Project CHILD children from both Dallas and Irving schools. Each child was tested individually by a pediatrician and a research assistant on ten of the neurological soft signs most commonly referred to in literature concerned with exceptional children. The ten soft signs were as follows:

1. Lateral Dominance - Hand, eye and foot preference.
2. Balance - Hopping and standing on one foot.
3. Stereognosis - Tactile identification of coins.
4. Graphesthesia - Tactile identification of numbers written on palm of dominant hand.
5. Choreoathetosis - Involuntary movement of the outstretched fingers.
6. Finger Identification - Tactile identification of two fingers touched simultaneously on the dominant hand.
7. Diadochokinesia - Tapping rate alternating from palm to back of hand; tested both dominant and non-dominant hands.
8. Color Vision - Presence or absence of color blindness as measured by the Ishihara Test.
9. Pupil Equality - Comparing diameters of right and left pupil.
10. Head Circumference - Determing the degree of deviation from normal.

All of the children were reclassified as learning disabled, borderline or normal by use of the Myklebust Learning Quotient. Metropolitan Achievement Test scores in Total Reading, Spelling, and Mathematical Computation as well as scores on the California Test of Mental Maturity for the Dallas children and the Short Form Test of Academic Aptitude for the Irving children were used to compute these quotients. Only children with full scale IQ's of 85 or greater and who had recorded scores on the Metropolitan Achievement Test were selected for data analysis. The lowest Learning Quotient from the three achievement areas was used for classification. Learning Quotients of 90 or above were classified as Normal, 85 through 89 as Borderline, and 84 or below as Learning Disabled. The following table shows the division of children by sex and learning category.

TABLE I - Number of children by sex in each learning category.

	Male	Female	Total	
Learning Disabled	83	56	139	
Borderline	53	46	99	
Normal	52	78	130	
TOTAL	188	180	368	Grand Total

Of the 422 children tested on the neurological examination, 19 had IQ scores of less than 85, and 35 had either the September Metropolitan Achievement Test score and/or the IQ score missing, and could not be classified.

Each neurological evaluation will be analyzed separately. The tentative results are as follows:

1. Lateral Dominance
   a. No significant differences between Learning Disabled, Borderline, and Normal children
   b. Significant sex differences
      1. Differences between Borderline Male and Female ($P < .05$)
      2. Differences between Normal Male and Female ($P < .05$)
      3. No differences between Learning Disabled Male and Female

2. Balance

    a. Significant differences between Learning Disabled, Borderline, and Normal children

        1. Learning Disabled children had more difficulty than Normals ($P < .05$)

        2. No differences between Learning Disabled and Borderline, or between Normal and Borderline

    b. Significant sex differences within each learning classification ($P < .01$). In each classification, the males had a more difficult time with balance than did the females.

3. Stereognosis

    a. No significant differences between Learning Disabled, Borderline, and Normal children

    b. Girls made significantly more errors than boys ($P < .025$)

4. Graphesthesia

    a. Normal children made significantly fewer errors ($P < .001$) than either the Borderline or Learning Disabled children, and there were no differences between Borderline and Learning Disabled children.

    b. Girls made significantly fewer errors than boys ($P < .05$).

5. Choreoathetosis

    a. No significant differences between Learning Disabled, Borderline, and Normal children

    b. There were significant differences between males and females within each learning classification with the males having a greater incidence than the females.

6. Finger Identification

    a. No significant differences between Learning Disabled, Borderline, and Normal children

    b. No significant differences between males and females

7. Diadochokinesia

    a. On the first trial with the dominant hand, there were significant differences ($P < .001$) between Learning Disabled, Borderline and Normal children.

        1. Learning Disabled children were slower than both Borderline and Normal children.

2. No differences between Borderline and Normal children

b. No significant differences between males and females.

8. Color Vision

a. No significant differences in incidence between Learning Disabled, Borderline, and Normal children

9. Pupil Inequality

a. No significant differences between Learning Disabled, Borderline, and Normal children

10. Head Circumference - data not yet analyzed

AUDITORY AND VISUAL PRESENTATIONS OF PAIRED-ASSOCIATE LEARNING TASKS WITH LEARNING DISABLED AND CONTROL CHILDREN -

A PROGRESS REPORT

AUDITORY AND VISUAL PRESENTATIONS OF PAIRED-ASSOCIATE LEARNING TASKS WITH LEARNING DISABLED AND CONTROL CHILDREN

This study involved Project CHILD children enrolled in the IPP classes in both the Dallas and Irving school districts. Two lists of eight paired-associates were formed, using simple four-letter nouns as the stimulus and consonants and the response components. Each list was prepared for presentation three ways, using identical timing on each presentation. An auditory presentation (A) was prepared on an audio tape recorder where the stimulus word was presented, followed by a 6-second anticipation interval; the stimulus and response items were then presented, followed by a 3-second inter-pair interval. This sequence was followed until the list was recorded ten times, each time having a different inter-pair ordering. Two visual presentations were also prepared on video tape, using the same time sequences as above. In the picture condition (P), line drawing representations of the nouns were used for stimuli and printed capital letters as response items. The word condition (W) used the nouns printed in capital letters as stimuli and printed capital letters as response items.

Each child was individually brought into two testing sessions. During Session I, the child was given ten acquisition trials using one of the methods of presentation (A, P, or W). This was immediately followed by five additional trials over the same list using another method of presentation. During Session II, the child was given 10 acquisition trials over the second comparable list, using a different method of presentation than that used during the first 10 acquisition trials. If, for example, the child received method A during the first 10 trials of Session I, he was given either method P or W during Session II. If he received either method P or W during the first 10 trials of Session I, he was given method A during Session II. For each child, then, we have 10 acquisition trials using an auditory presentation for comparison with 10 acquisition trials using either a picture or word visual presentation. Also, comparisons can be made of shifts from one method of presentation to another over material just learned.

In addition to comparing the three methods of presentations, comparisons will also be made between the learning disabled and the control children during all phases of the study.

Analysis of the data completed to date indicates no significant differences between the learning disabled and the control children over the first 10 acquisition trials. A comparison of the methods of presentation, however, indicate that the children not only learn faster, but learn more when the material is presented pictorially when compared to the visual presentation using printed words or the auditory presentation. There were no significant differences between these latter two methods of presentation. The analysis of the shift from one method of presentation to another over the same material has not been completed. There are indication, however, that significant decrements in performance are produced from some combinations of presentations and not from others.

A subsequent study will utilize the ITPA and WISC scores on each child to compare to his visual and auditory performance on the learning tasks.

GROSS MOTOR RECREATIONAL PROGRAM

GROSS MOTOR RECREATIONAL PROGRAM

The Gross Motor Recreational Program for Handicapped Children was conducted by Irving Independent School District during the summer of 1973. Data were gathered on an experimental group of thirty-five children and a control sample of 18 children. The program was designed to improve gross motor skills.

PROCEDURE

The curriculum was incorporated in four stations directed toward specific gross motor skill development. The stations were: Station I - Rhythms; Station II - Tumbling, Obstacle Course, and Chalkboard; Station III - Specific Coordination Exercises; and Station IV - Laterality and Directionality. A detailed list of the activities included in each station, the daily schedule, required equipment and recommended medical supplies follows.

SCHEDULE

I. Warm-up exercises

II. Stations (20 minutes each)

- A. Rhythms
- B. Tumbling - Obstacle Course - Chalkboard (2 teachers)
- C. Laterality - Directionality
- D. Specific Coordination Exercises (Frostig)
    1. Body Awareness
    2. Coordination
    3. Agility
    4. Flexibility and strength
    5. Balance
    6. Creative Movement

III. Organized Group Games

There will be one "floating" teacher to observe special needs of children and to help any station when necessary.

STATION I

RHYTHMS

Hand Rhythm Record
Clap Rhythm Game
Relax

If You're Happy and You Know It: This song has different motions
Clapping to music such as Baja Marimba Band
Relax

The Elephant Song: Combination of rhythm and creative movement. Go through game twice.
Relax to game such as Raggedy Ann

Hokey Pokey: To limber up
Creative movement: Doing animals
Relax: Balancing creatively

Bunny Hop Record
Limbo Record

Marching Records
Limbo
No Bones

Color Games: On tape
Basic Skills through Music
Number March

Creative Movement: Movement exploration with partners (Example: A machine traveling)

Tapes
Number Game March
Put Your Hands in the Air
Jump Rope to Music
Charade Games

Music for Young Exercises
Big rope jumping
Peas Porridge: Hand clap pattern

Exercises: Pendulum swing, side stretch, knee bend, freedom march, sit-ups, circle arms, bob bob bobbing, jumping and skipping around gym
Music Stop Game

Movement Exploration to Music: Such as fish in aquarium, lion, elephant, circus parade

STATION 2

TUMBLING, OBSTACLE COURSE, AND CHALKBOARD

MATWORK

Body Identification, laterality, body parts, lying down back, front, side. Move on back position with partner. Locomotion and strength. Work with partners. Side by side hands joined, push, pull, bend, twist.
Bilateral leg and arm movement.
Angels in the Snow: Children learned this in time to counting: 1 being body straight, arms to sides, legs straight, 2 arms out, legs out, 3 arms over head, legs back together and straight, then back to "2" and "1" position and repeat.
Alternate arm and leg movement.
Exploration of gravity with body parts.
Rolling
Rolling sit-ups

TUMBLING

Forward rolls, backward rolls, log rolls, and monkey rolls.

TRAMPOLINE

The Chicken: Bounce with body in sitting position, flapping arms to the side. This strenghthens stomach, arms, shoulders and back muscles.
Basic Bounce Standing Position: Put circle at the end, have child bounce always watching the one sopt. This helps in eye-coordination, body control and concentration.
Basic Stunts: To coordinate their balance. Such as, seat drop, knee drop, doggie, rabbit.
Bounce by sitting and throwing the ball helps in eye-hand coordination and balancing. This was especially good in directionality and body awareness in space.

CHALKBOARD ROUTINE

Bilateral Circles
Regular Circles
Horizontal lines
Vertical lines

STATION 3

SPECIFIC COORDINATION EXERCISES

RELAYS: Making use of fundamental movements of walking, running, skipping, galloping, sliding, hopping, jumping and various creative stunts.

RHYTHMIC EXPERIENCES: Simple folk dancing involving fundamental skills, such as, clapping hands to rhythm, simple circle formation, working with partners, walking and skipping, learning to listen to music.

STORY GAMES: Gross body movements and dramatic movements. All participate at their level of ability.

Identification Rhythms

Make Believe World

Activities using bean bag tossing and throwing promoted good hand-eye coordination: Bean bag activities with partners, doing relays with bean bags.

MOVEMENT EXPLORATION:

Activities involving basic movements: Balancing, bending, bounding, carrying, climbing, catching, crawling, dodging, extending, galloping, hitting, kicking, lifting, shifting body weight, stopping, tagging, twisting, swinging.

Activities with tires: Running, skipping, walking, jumps, bunny jumps, frog jump. Rolling the tire. Tossing bean bag into tires.

Individual and dual rope activities: Rope in a straight line, rope coiled, rope in circle, shake it sideways.

Many more activities were utilized.

STATION 4

LATERALITY - DIRECTIONALITY

PRE-BALANCE

Begin on mat
Balance on side
Balance in a sitting position
On hands and feet--raise feet so that he balances on hands and knees
Raise one knee (or hand) so that he balances on only three points
Balance on left hand--right knee and vice versa
Balance on right hand--right knee, on left hand--left knee
Balance only on two knees
Balance on foot and knee
Balance heel to toe (one in front of other) using arms to aid, then arms folded, then use arms and eyes closed, then no arms and no vision.
Do above on non-preferred foot

WALKING BOARD

Forward
Backward
Sidewise
Turning-Walk across board, without stepping off, turn and walk sidewise
Turning-Walk forward across, turn and return walking forward
Turning-Walk backward across board, turn, return walking backwards
Walk to the center of the board, turn, walk back
Allow them to bounce on board
Step over a stick
Pick up bean bags on floor
Put bean bags on both sides of board. Pick all bags up with right hand, then put all bags up with left hand.
Tilt board
Walk board with bean bag balanced on head, then walk with bean bag and nerf ball balanced on head.

BALANCE BOARD

Child rocks board both in right-left direction, fore and aft.
Bounce rubber ball on floor in front of him and catch it. Bounce ball to other child on balance board.
While on board, bean bag toss
Perform simple calisthenics on board
On board ask child to touch shoulders, hips, knees, ankles, toes
Touch left knee with right hand, etc.

MISCELLANEOUS

Bean bag toss
Body parts identification songs and activities
Body identification, balance, spatial orientation:
    Lying on back, hold bean bag in hand, toss and catch
    Sitting, toss bean bag over head from hand to hand
    Kneeling, toss with head and catch with hands
    Standing, place bean bag between feet, jump and catch
    Hands and feet touching floor, place bean bag on back, jump to dislodge bean bag and catch.
    Magic square
    Work with left-right, yarn balls, Simon Says, directions

EQUIPMENT

3 Heights of Balance Beams
2 Rocking Boards
1 Large Trampoline
Several large and small mats
Nerf balls - large and small
3 Large Blackboards
Large and small Pegboards and pegs
Kick Balls
Volley Balls
Tennis Balls
Large and small rubber balls
Bean Bags
20 Small Jump Ropes
Steps
2 Parachutes
6 Bamboo Poles
Basket Balls
Pick-up-Sticks
8 Tires
Ring Toss Games
23 Rhythm Sticks
Tamborine
Snare Drum
2 Record Players
2 Tape Recorders
Tapes
Large and Small Parquetry Blocks
Suspendible Balls
2 Large Barrels
Ice Cream Cartons
Plastic Bats
Chalk and Erasers
Barrel of Monkeys
Safety Pins
Paper clips
Marks-A-Lots
Clip Boards
Pencils
Masking Tape
Index cards
Stapler and staples
Manilla Folders
Colored beads to string
Shape Puzzles
Form Boards
Charade CArds
Scissors
2 Bats and Softball
Play Dough
Motor Expressive Cards
Timer
Magnetic Letters and Numbers
Visual Focal Point Cards
2 Tables
Basket Ball Nets
Benches

Records

Tinikling

Limbo Rock

Hokey Pokey

And the Beat Goes On

Fifteen for Fitness

Rhythm Record Physical Fitness for Intermediate and Primary (2)

Hand Rhythms

Coordination Skills

Folk Dance for Children

Modern Mother Goose Nursery Rhymes and Songs

Songs for Children with Special Needs

Numbers, Colors, Alphabet and Body Awareness

Learning Basic Skills to Music

Get Fit While You Sit

Modern Square Dancing

MEDICAL SUPPLIES

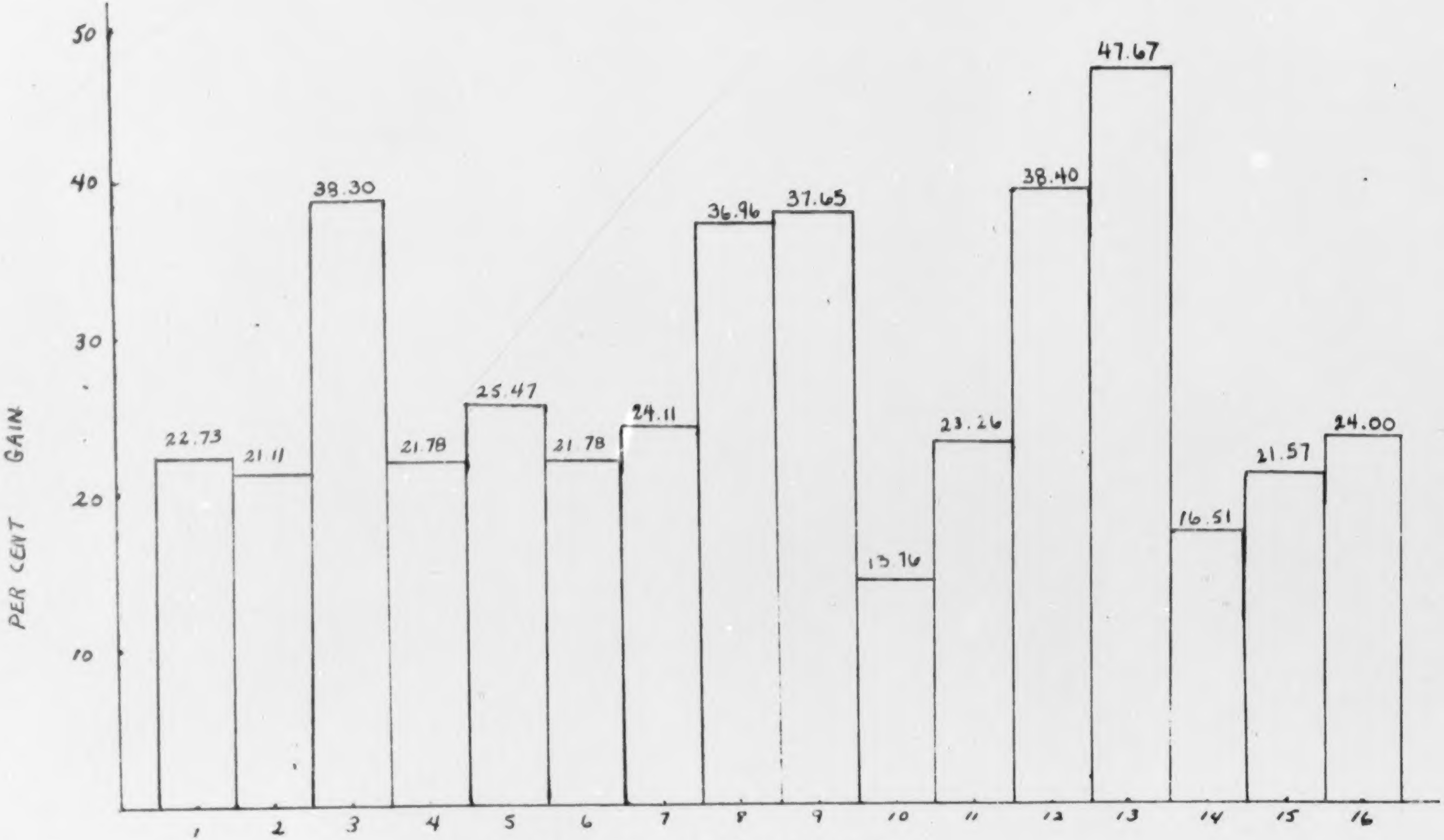
- Oxygen
- Curity Gauze Sponges
- Cotton
- Small Drinking Cups
- Slings
- Different Sized Splints
- Beladine Solution
- Tincture Green Soap
- Steri-pad (gauze pads)
- Cotton Tip Applicators
- Rubbing Alcohol
- Calamine Lotion
- First Aid Cream
- Tape - different sizes
- Band-Aids- different sizes
- (For diabetics) Orange juice and sugar cubes
- Saline Eye Wash
- Tongue Suppressors
- Ammonia Inhalants
- Sheets and Blankets
- Cot

RESULTS

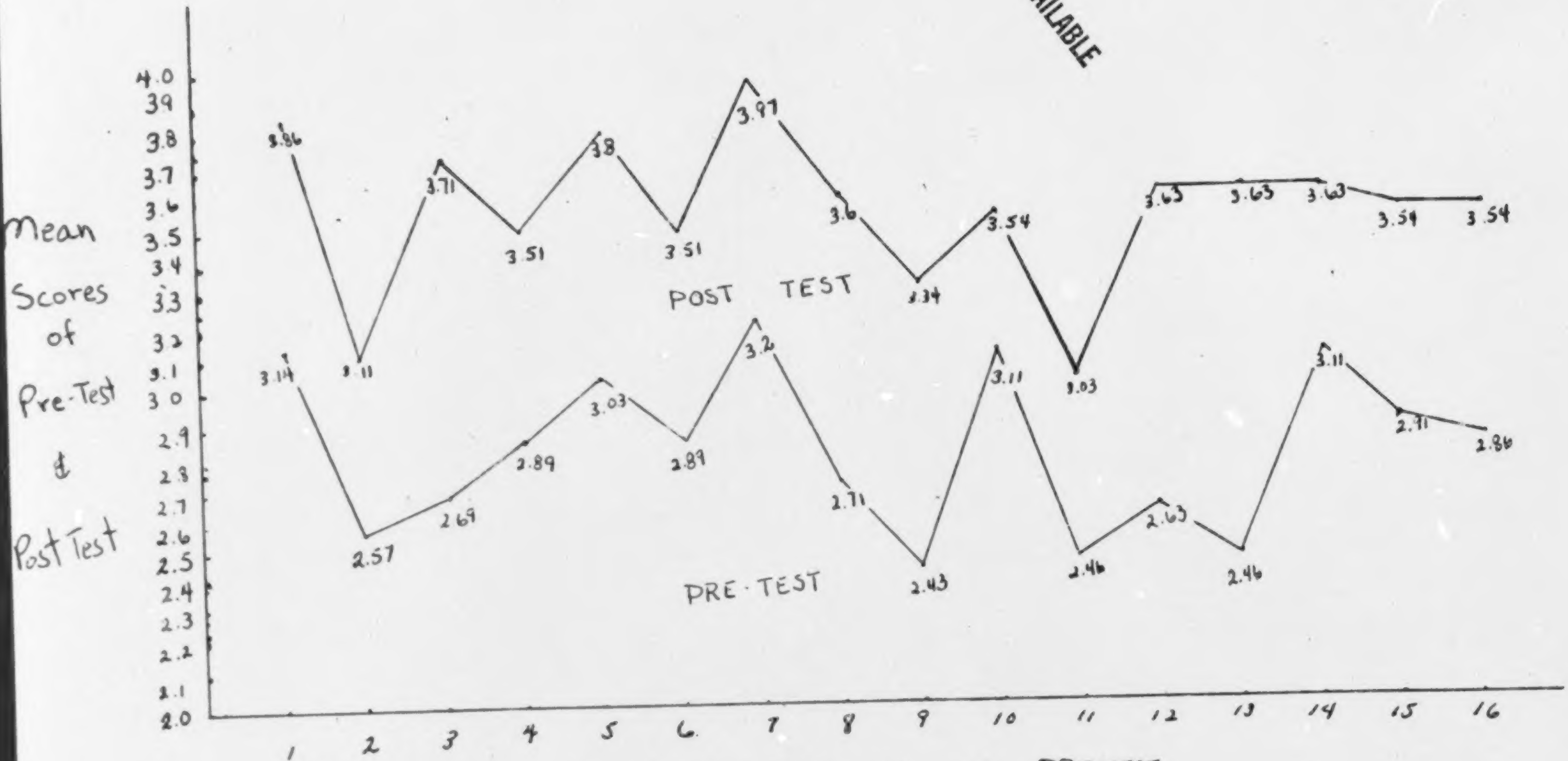
The results of the Irving Public School District's Gross Motor Recreation Program for Handicapped Children produced significant data. Based on a sample of 35 children in the experimental group receiving training and the control group of 18 children, the experimental group improved 21.40% over the control group.

A pre-test and post-test was performed by using sixteen items on the Purdue Perceptual Motor Survey. These items were in order: (1) Walking Board - forward, (2) Walking Board - backward, (3) Walking Board - sidewise, (4) Jumping, (5) Identification of Body Parts, (6) Imitation of Body Parts, (7) Obstacle Course, (8) Kraus - Weber, (9) Angels-in-the-Snow, (10) Chalkboard - Circle, (11) Chalkboard - Double Circle, (12) Chalkboard - Lateral Line, (13) Chalkboard - Vertical Line, (14) Ocular Pursuits - Both Eyes, (15) Ocular Pursuits - Right Eye, (16) Ocular Pursuits - Left Eye.

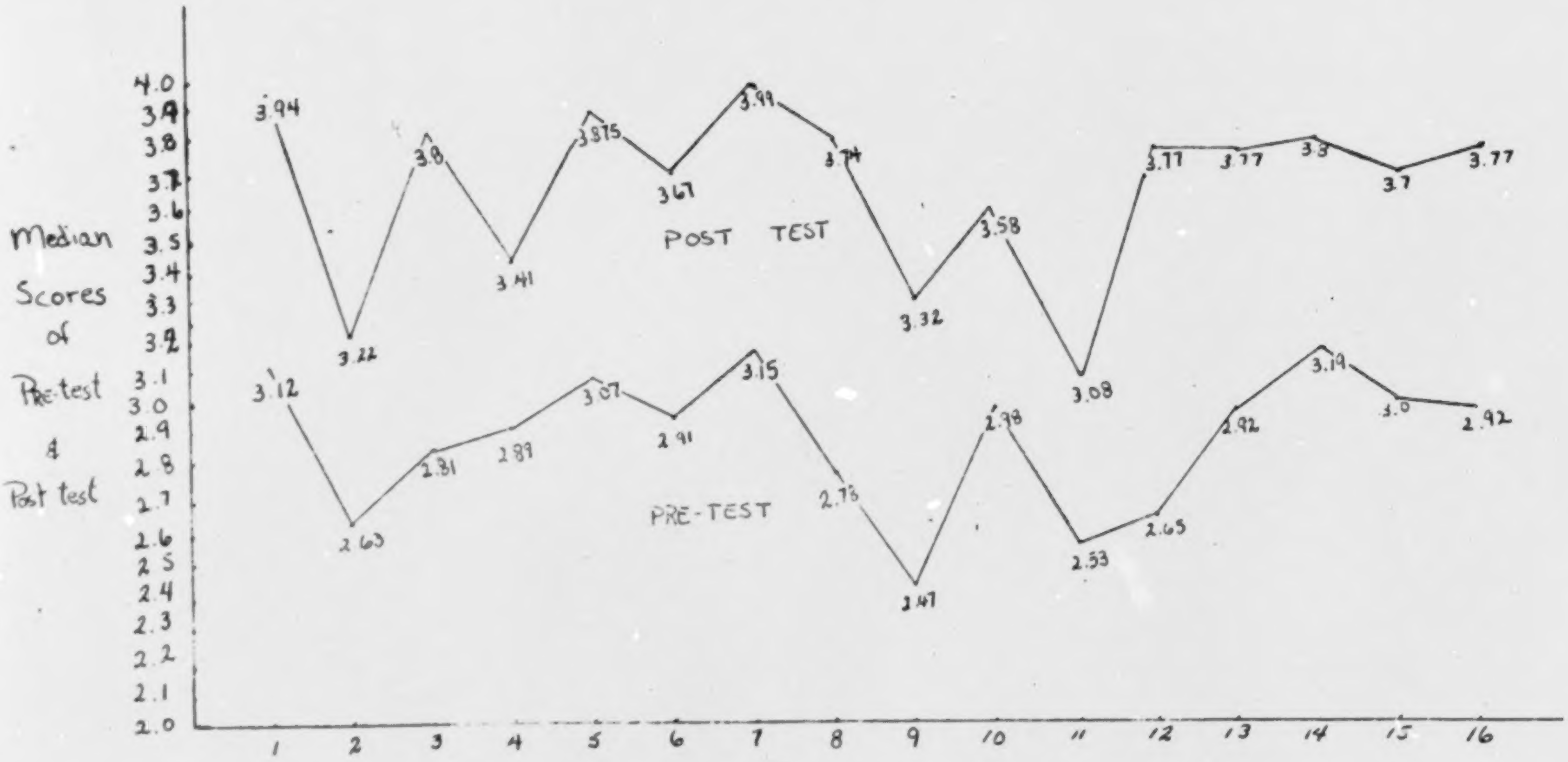
The results compiled from the pre-test and post-test showed that all gains made by the experimental group using the test were significant at the $p < .05$. The control group failed to reject the Ho at $p < .05$. All gains by the control group could only be attributed to chance.



SKILL AREAS GAINS
for the Experimental Group



SKILL AREAS TESTED ON PRE-TEST
AND POST TEST for
the Experimental Group



SKILL AREAS TESTED ON
PRE-TEST AND POST TEST
Experimental Group

Experimental Group	$\bar{X}_1$	$\bar{X}_2$	Mdn.$_1$	Mdn$_2$	t	%
Walking Board - forward	3.14	3.86	3.12	3.94	6.13	22.73
Walking Board - backward	2.57	3.11	2.63	3.22	3.82	21.11
Walking Board - Sidewise	2.69	3.71	2.81	3.80	7.52	38.30
Jumping	2.89	3.51	2.89	3.41	4.51	21.78
Identification of Body Parts	3.03	3.80	3.07	3.875	4.14	25.47
Imitation of Movement	2.89	3.51	2.91	3.67	3.36	21.78
Obstacle Course	3.20	3.97	3.15	3.99	9.15	24.11
Kraus - Weber	2.71	3.60	2.78	3.74	7.69	36.96
Angels - in - the - snow	2.43	3.34	2.47	3.32	7.56	37.65
Chalkboard - Circle	3.11	3.54	2.98	2.58	4.59	13.76
Chalkboard - Double Circle	2.46	3.03	2.53	3.08	4.48	23.26
Chalkboard - Lateral Line	2.63	3.63	2.65	3.77	6.64	38.40
Chalkboard - Vertical line	2.46	3.63	2.92	3.77	4.76	47.67
Ocular Pursuits - Both eyes	3.11	3.63	3.19	3.80	4.62	16.51
Ocular Pursuits - Right eye	2.91	3.54	3.00	3.70	4.82	21.57
Ocular Pursuits - Left eye	2.86	3.54	2.92	3.77	5.64	24.00

Note: t score = 2.262, df = 34; $p < .05$

Experimental Group $\bar{X}_1$ = 45 ; $\bar{X}_2$ = 56.43 ; Mdn$_1$ = 46 ; Mdn$_2$ = 57 , overall gain 25.40%
t = 9.63; df = 34 $p < .05$. reject H_0

Control Group $\bar{X}_1$ = 52 , $\bar{X}_2$ = 54.06 , Mdn$_1$ = 52.5 Mdn$_2$ = 55 ; overall gain 3.95%
t = 1.64, df = 9 $p < .05$. failed to reject H_0

CONCLUSIONS AND RECOMMENDATIONS

Strengths

This program was designed to improve gross motor skills of all participating children. The program itself was structured, having several "fun" activities which met the needs of different types of handicaps.

The staff divided into four stations and each child spent about twenty minutes at each station. A floating teacher moved from station to station. This worked out very well for each teacher to learn all the different areas and to have a teacher available when necessary. Opening exercises before each class got the children in good shape for each station. A whistle was used to signal the groups to change stations. With the younger group, this meant to "Stop, Look, Listen!"

The trampoline provided excellent exercise for body coordination and was favored by the children. A regulation size parachute was used not only in team work but also in making the children aware of spatial relationships. The balance board and walking boards have been excellent for balance and coordination.

In rhythms the children worked well together. Creative movement with balancing worked out very well. Eye-hand coordination and concentration on one object improved within one week. Also the trampoline was used to improve a multiple of skill areas.

Plastic bats and nerf balls were used for eye-hand exercises. A swinging ball tied to an overhang was used for ocular control. Charades with pictures of animals, people, and things worked well in self-expression and role play. Creative movement records were excellent for self-expression. The children enjoyed simple folk dancing. This was good on listening and concentration.

Self-image and confidence improved within the first week. The second and third week the children were definitely making progress and were still content with the program. The children were learning to participate in organized activities, taking turns, and following directions.

Jump roping to music taught them to listen, rhythms, and body coordination. The children also became aware that there are other children with coordination problems like them. They participated in the City Wide Meets (Recreation Center) on standing broad jump, racing, etc. This was good for competition and self-confidence. Almost all the children won a ribbon.

Follow the leader helped them to learn to follow directions and also to be a leader and build his self-respect.

Discipline was rarely a problem in movement exploration. Through movement exploration the child was able to retain his individual identity so that his self concept improved.

Parent response to the program was excellent. Some of the parents stated that they would like a follow-up program initiated in the elementary schools during the 1973-74 school year. Also there was discussion of another Summer program in 1974.

The program personnel had much enthusiasm and interest in the program. Each had an adequate background and expertise to conduct their part of the program. Each person contributed much to the program, sharing many of their original ideas.

Weaknesses

The coordination of the program from the onset was insufficient. The staff was given poor guidelines to work from; thus, valuable time was lost. If the plans had been more adequately made, more parents and school personnel would have known about the program. Teachers and principals needed more time to refer the children. Testing, although necessary, took too much time at the beginning and end of the program. There was also some confusion and misunderstandings between the administration and staff on the program guidelines and its administration.

It was felt that the program was entirely too long. Running the program the month of June and one week of July would be adequate. After this amount of time the children begin to lose interest. The class periods each day were too long. One and a half hours for each class would be long enough.

Children from lower income families and families with both parents working could have been involved if some type of transportation could have been arranged. Some of the children were too young (4 1/2). They took too much individual attention which took time away from the entire program.

Adequate materials were not provided. Most of the equipment was provided by the instructors either out of their own funds or creative imagination.

The early class was from 8:00 - 10:00, but some parents brought their children as early as 7:30 a.m. Some parents stayed and watched; this was very distractible to the children.

Newspaper coverage was insufficient and offered this as a Summer recreation program only; therefore, we felt that many children that did not need the program came.